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ABSTRACT

The Pennsylvania Vocational Education Study was planned primarily as a pragmatic overview and analysis of vocational, technical, and continuing education for the years 1964-1968, with a goal of determining its achievements, deficiencies, and direction in the light of priority needs. Recommendations and conclusions were derived from data relating to: (1) a 5-year analysis of enrollments and expenditures in vocational-technical and continuing education, (2) economic trends, (3) occupational training agencies, programs, and output of graduates, (4) a description of a systems approach to vocational and technical education program-planning, (5) reporting procedures and financial aid policies, (6) teacher education and certification, (7) vocational guidance services, and (8) special problems of Philadelphia and Pittsburgh. Major recommendations were for: (1) expansion of post-secondary vocational and technical education, (2) increased funding and emphasis on adult education, (3) overcoming deficiencies in health, occupations, technical education, and special needs programs for the socioeconomic disadvantaged, (4) development of an organized systematic planning procedure, (5) modernization of financial aid policies and reporting procedures, and (6) improvement in communication patterns between state and local levels. (DM)

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Vocational Technical and Continuing Education in Pennsylvania

A Systems Approach to State-Local Program Planning

A Report to the:
Department of Public Instruction and the
Pennsylvania State Board of Education

By:
Walter M. Arnold, Consultant
Vocational and Technical Education

1969

VT009348

Commonwealth of Pennsylvania
Raymond P. Shafer, Governor

Department of Public Instruction
David H. Kurtzman, Superintendent

FOREWORD

In 1966, on behalf of the Pennsylvania State Board of Education, also the State Board for Vocational Education, Mr. Gail Rose, Chairman of the Vocational Education Committee of the Board requested the Bureau of Vocational, Technical and Continuing Education and the Research Coordinating Unit for Vocational Education, Bureau of Research, Department of Public Instruction to develop a proposal to make a comprehensive study of Vocational and Technical Education in Pennsylvania with a view toward appraising the present program and determining the direction it should take in the immediate years ahead.

As a result of consultation between the staffs of the two Bureaus and with the advice of the State Advisory Committee for Vocational Education, twelve major broad areas of concern in Vocational Education were identified for possible study. Proposals pertinent to these topics were solicited from consulting firms. Four firms responded with proposals which were presented in June, 1967, to a review committee of State Board and Department of Public Instruction staff members, and two of three invited vocational education research consultants.

After review and discussion of the presentations and the proposals, it was the consensus of the committee not to enter into a contract with one of the consulting agencies for the whole study. The committee suggested that such a comprehensive study should be directed by a consultant who was knowledgeable about vocational and technical education.

As a result, in August, 1967, the Pennsylvania Department of Public Instruction entered into a contract with Dr. Walter M. Arnold, former Assistant Commissioner for Vocational and Technical Education, U.S. Office of Education who had been granted a leave of absence to perform certain consulting services.

An outline of a proposed study, prepared by Dr. Arnold with the assistance of Department of Public Instruction staff members, was presented to and approved by the State Board for Vocational Education in its regular meeting in September, 1967. A copy of the proposed study outline is included in the appendix. Brief bi-monthly memorandum progress reports were prepared by Dr. Arnold for Dr. John W. Struck, State Director for Vocational, Technical and Continuing Education, to present to Mr. Rose and his committee and in turn to the State Board.

During the course of the study, sub-contracts were entered into, the results of which were very useful in producing the final report. In addition, the director and his staff in the Research Coordinating Unit contributed materially by assuming the responsibility for certain special studies. Both clerical and professional assistance provided by the Bureau of Vocational, Technical and Continuing Education also contributed materially to the completion of the study and the report.

Although, some limitations were necessary, primarily because of time, the study has been carried out substantially as prescribed in the original proposal. It should be recognized that this report, as a first comprehensive overview of vocational education in Pennsylvania, should serve as a basis for continued study and evaluation of the program and its trends.

As is usually the case in this kind of study, valuable by-products were derived such as professional growth of staff members who participated in the study and productive cooperative working relationships with other State agencies as well as many other organizations and persons.

It is expected that the report will serve as a source document for various purposes in the Commonwealth and beyond. There are many useful ideas and implications in the report for both lay leaders and professional educators to assist in redirecting the Pennsylvania program toward meeting critical needs of the people and employers. The report will be valuable in effecting program changes and improvements in proportion to the extent of the implementation of, at least, the more basic overall recommendations such as systematic program planning, follow-up of vocational education graduates and early leavers, and reorganization of the Bureau of Vocational, Technical and Continuing Education.

Perhaps the most important single concept threading throughout the report is that of a State-wide unified program of occupational and continuing education coordinated by the Pennsylvania State Board for Vocational Education. If this concept is accepted and fostered, there is little doubt that the Commonwealth of Pennsylvania can, in fact, assume an outstanding leadership role in occupational and continuing education in the United States.

The results of the study are submitted herewith, by the director in this report, to the Pennsylvania Department of Public Instruction and the Pennsylvania State Board of Education. The director of the study assumes full responsibility for the content and the recommendations.

Walter M. Arnold

Walter M. Arnold, Director
Pennsylvania Vocational Education Study

INTRODUCTION

The Pennsylvania Vocational Education Study was planned primarily as a pragmatic overview and analysis of vocational, technical and continuing education program in the Commonwealth over the past five years, 1964 through 1968, with a view toward determining its achievements, deficiencies and direction in the light of priority needs of the people and employers. The guidelines for the study were based on the thirteen goals for vocational and technical education approved by the State Board of Education in March, 1966. The study was not intended or planned as a basic research project to analyze philosophical issues in vocational education.

More specifically, the study was addressed to an analysis of the operating program since the passage of the Vocational Education Act of 1963, to determine what its direction was in the light of the economic trends and manpower needs of the State and what the projected program needs and costs might be up to 1975. Therefore, there was a minimum of philosophical treatment of vocational education and an emphasis upon systematic planning for a total unified manpower development program for the future. The emphasis was placed on "what is needed" and "how can it be accomplished", rather than "why should it be done". The rationale for an adequate vocational education program and this study is best expressed in the outline proposal of the study in Appendix A.

The study was committed to the use of existing important relevant data and information in making essential analyses and projections. It was agreed by all concerned early in the study, that the result should not be a report which might be read casually and filed away until a next study was conducted. Neither should it be a study of some partial aspect of vocational education so that the relationship of the program to other important training programs was not made clear. This was the general history and outcome of the several previous studies conducted in the past.

As this study progressed, several aspects took on increasing importance and value. First, in view of the peculiar socioeconomic history of Pennsylvania it seemed important that educators and vocational educators should be informed about the economic competitive posture of the State, especially with implications for vocational and technical education. Secondly, it was felt that the study should develop a planning pattern which would require continuous updating of data and information so that the State Board and the Department of Public Instruction could always have available the most recent reliable basis for planning, evaluating, redirecting older programs, and developing new programs to attain short and long range goals. Along with this decision it was also agreed that there should be designed and applied a structured systematic approach to continuous State-local planning (as contrasted with intermittment planning) of annual and long range occupational education programs in the light of all citizens' socioeconomic needs and identified trained manpower supply and demand.

Since this is the first such large scale attempt made in the State, there are undoubtedly gaps and deficiencies in this study. In a number of instances, sub-studies had to be sharply delimited because of the lack of time and the urgent need for results to be timed with the implementation of the Vocational Education Amendments of 1968, P.L. 90-576. In other cases, certain methods of projecting economic trends, manpower demands and needs, and program costs were chosen as against other methods which might be just as appropriate and reliable. It is very important, therefore, that the study of the manpower development programs in Pennsylvania be continued, making necessary adjustments and revisions, by the Research Coordinating Unit with the active cooperation and assistance of the Bureau of Research, the Bureau of Vocational, Technical and Continuing Education and other involved State and Federal agencies.

With the preceding as a background, it should be helpful to the interested reader to review briefly the nature and pattern of the report. Section I is devoted to a five year analysis of enrollments and expenditures in vocational-technical and continuing education, 1964, the first fiscal year of the Vocational Education Act of 1963 (without funding) through the fiscal year 1968, the last fully reported program year. Included in the analysis is a general appraisal of the current program and its direction in the light of existing and projected labor force needs in Pennsylvania. It was not possible in this undertaking to make a thorough, in-depth evaluation of the quality of instruction in the existing program. This should become readily possible in the immediate years ahead.

In Section II, economic and projected trends of the Pennsylvania economy were analyzed and described. This analysis is not intended as a fine treatment for professional economists, but rather as a study of the important relevant economic information and trends for vocational, technical and adult education planning purposes. By this means, it is expected that vocational education could be more purposefully planned so that training programs might become attuned to the continued improvement of the economy in their communities and in the State as a whole. Another purpose of the economic analysis was to involve educators and vocational educators more directly in the business and industrial development of their communities and the State. In the future, program plans prepared and submitted by vocational educators could be measured more carefully and thoroughly in terms of an improved social and economic environment. In this way vocational, technical and continuing education could in fact become an economic asset to the Commonwealth.

Section II also identifies and describes briefly nine principal occupational training agencies and programs. The output of their graduates in 1967 became an important part of projecting the unmet occupational training needs by 164 classifications, State-wide, and for each of the 67 counties in the State. Therefore, Section II furnishes the basis for program planning and implementation dealt with in Section III.

Section III, along with Section II, forms the keystone to the whole study and report. A systems approach to vocational and technical education program planning is explained and described in detail in Chapter VI. Five charts and five forms were designed and applied in part in a local situation, the Cumberland-Perry Counties area, to illustrate this approach. The idea here was not to "sell" the systems approach as such, but rather to provide a sound method for making decisions in the final selection of programs from various feasible alternatives. Chapter VII sets up recommendations for a State organization and administration that would be needed to implement the systematic planning procedures as well as the other important functions of the State program.

Section V identified the principal difficulties in reporting procedures and provides recommendations for improving these administrative activities. Also revealed were some of the weaknesses in the present financial aid policies, especially in the light of the new policies required under P.L. 90-576. Certain recommendations suggest revision of legislation and the need for a formula for determining allocations of funds to local districts in the future.

Section V gives an overview of ancillary services and activities over the past five years. This section was devoted primarily to reports of two major ancillary services of the utmost importance in the growing vocational education programs, teacher education and certification, and vocational guidance services. Both of these services, along with research activities and curriculum development, are fundamental to the ultimate success of the program.

Section VI was devoted to an account of five special studies that were conducted, namely, the two large cities, Philadelphia and Pittsburgh; special socioeconomic needs; a follow-up system of graduates; an employer survey; and a survey of local vocational education administrators. All of these special studies contributed to a well-rounded report and strongly based conclusions and recommendations.

The conclusions and recommendations were synthesized and summarized to conclude the report. The summary also proposes overall projected program expansion to bring the annual supply of trained manpower more nearly into agreement with the projected demand, and describes a method for estimating annual costs up to 1975. Implementation of the program expansion, wholly or in part, will bring about a substantial contribution to the general welfare of the people and the Commonwealth.

Assuming that the Research Coordinating Unit and the occupational and continuing education agency continue to develop and manage the system that is recommended, Pennsylvania should have one of the most effective program planning systems in the Nation.

ACKNOWLEDGMENTS

Many persons, governmental agencies and other organizations contributed directly and indirectly to the conduct of this study and the preparation of the final report.

Special recognition is accorded to Dr. Jay Smink, Director, Pennsylvania Research Coordinating Unit for Vocational Education for his diligence and valuable assistance in directing many aspects of the study. In addition, Dr. Smink prepared Chapter XIV on the system for follow-up of vocational education graduates. Staff members of the Research Coordinating Unit also contributed to various parts of the final report. Dr. Ferman B. Moody, Assistant Director, conducted the study and prepared Chapters IX and X on General Ancillary Services and Vocational Teacher Education and Certification, respectively. Miss Erma D. Keyes, Research Associate, conducted and prepared Chapter XI on Vocational Guidance and contributed materially to the preparation of Chapter XIII on Special Socioeconomic Needs. Mr. Alex Lipsman, Regional Economist, Mid-Atlantic Region, Office of Economic Opportunity, cooperated with the study director and Miss Keyes by supplying information for Chapter XIII Special Socioeconomic Needs. Mr. James F. McNamara and Mr. Clarence A. Dittenhafer, Research Associates, conducted the study and prepared that portion of Chapter V dealing with the supply of manpower in Pennsylvania. Mr. Joseph M. Snarponis conducted the study and prepared much of the data and material found in Chapters I and VIII.

The clerical staff of the Research Coordinating Unit are to be commended for their cooperation and diligence in typing the final report: Mrs. Jane Frazier, Miss Janice Roberts, Miss Joanne Kastelic and Miss Nina Jarmolenko of the Research Coordinating Unit; and Mrs. JoAnne Orr, Mrs. Frances Grosky, and Mrs. Sandra Miller on loan from the Bureau of Vocational, Technical and Continuing Education.

Dr. John W. Struck, Director of the Bureau of Vocational, Technical and Continuing Education, gave every possible assistance in expediting the conduct of the study and the report. Dr. Struck's staff, especially Mr. Paul Schalles, Assistant Director and Mr. Robert Edwards, Chief, Division of Instructional Consultation, and the State Supervisors and Coordinators in the various occupational fields aided in the reporting of data in their specific programs. Close cooperative working relationships were developed and an interchange of ideas and data contributed greatly to the in-depth presentations on all of the occupational education programs.

Deep appreciation is expressed for the continued interest, support and substantial assistance from start to finish of the study by Dr. Robert B. Hayes, Director, Bureau of Research. Appreciation is also expressed for the assistance given by Dr. John G. Cober and Dr. Frank Durkee for their contribution to Chapter VIII on Finance and Reporting.

Dr. Max Eninger, President, Educational Systems Research Institute, Inc. of Pittsburgh, Pennsylvania made an outstanding contribution to the study in the design and try-out of a computerized system for follow-up of vocational education graduates and early leavers, described in Chapter XIV. The system is now operational throughout the State.

Mr. Kenneth Pfeiffer, on loan from the Bureau of Vocational, Technical and Continuing Education, conducted the studies and prepared the reports on the Employer Survey in Chapter XV and Local Administrators Survey in Chapter XVI. Mr. Pfeiffer also contributed materially to the completion of Chapter VII on Organization and Administration.

A "breakthrough" in educational program planning was accomplished by the thorough work conducted by the Reentry and Environmental Systems Division of the General Electric Company, Philadelphia, Pennsylvania in developing two key parts of the study. Special recognition is accorded to Mr. Jacob Ross, Economist, for his study and preparation of Chapter IV on the Competitive Posture of Pennsylvania and to Mr. Robert G. Willard, Consulting Engineer, Systems Planning, who designed the systems approach to State-local planning in Chapter VI. The General Electric Company more than fulfilled the terms of its contract by following through with additional assistance whenever needed.

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Mr. William Hucksoll, former City Director of Vocational Education in Baltimore, Maryland, conducted the study and preparation of Chapter XII on the Large Cities. Dr. Paul Essert, Consultant on Adult Education, conducted the study and prepared Chapter III on continuing education. Dr. James D. Tarver, Agricultural Economist, University of Georgia prepared a useful special report on the Farm Manpower Requirements of Pennsylvania, 1960-1970.

Deep appreciation is expressed to Dr. David H. Kurtzman, Superintendent of Public Instruction, Dr. Anton B. Hess, Deputy Superintendent and Commissioner for Basic Education, Dr. Frederic K. Miller, Deputy Superintendent and Commissioner for Higher Education, Mr. Donald M. Carroll, Jr., Assistant Commissioner, Programs and Services and other staff members for their continued interest and assistance throughout the duration of the study.

Other bureaus in the Department of Public Instruction including the Bureau of Community Colleges, Bureau of Guidance Services, Bureau of Management Information Systems, Bureau of Teacher Education, and the Bureau of Private Schools and Veterans Education, made available their advice and staff assistance.

Special recognition and appreciation is extended to Mr. Gail Rose, Chairman of the Vocational Education Committee of the State Board of Education and committee members Dr. William M. Potter, Mr. Parke H. Lutz, Mr. William K. Ulerich and Mr. Severino Stefanon, Secretary to the State Board of Education for their continued interest, counsel and support of the study.

Appreciation is also expressed to the members of the State Advisory Committee for the Research Coordinating Unit, and the State Advisory Committee on Vocational Education for their suggestions and counsel.

Many other State agencies outside the Department of Public Instruction aided in the development of the study. Among them were Governor Raymond Shafer's Office, the Department of Labor and Industry, Department of Community Affairs, Department of Commerce, Department of Welfare, and the Governor's Manpower Task Force.

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SECTION I--FIVE YEAR ANALYSIS, PROGRAM TRENDS AND CURRENT STATUS OF VOCATIONAL, TECHNICAL AND CONTINUING EDUCATION

CHAPTER I

PROGRAM EXPENDITURES, ENROLLMENTS AND TRENDS, 1964 THROUGH 1968

Vocational and technical education is an integral part of education that is closely related to the social and economic development of a State or community. Planned and managed wisely it can make a significant contribution to the alleviation of problems that arise from the hopelessness and despair present in a number of segments of the population. Promise is inherent in vocational education. Realization of its potential is its challenge to government at all levels, Federal, State and local.

Throughout the years, the Smith-Hughes and George-Barden Acts, and the Vocational Education Act of 1963, P. L. 88-210, have provided the foundation for preparing and advancing youth and adults in the non-professional work force of the nation. From initial pioneering activities and years of valuable experience many lessons have been learned by all levels of government. These experiences resulted in a monumental piece of legislation--The Vocational Education Amendments of 1968, P. L. 90-576. Just as the Vocational Education Act of 1963 sought to provide the most and best program for the dollars expended, P. L. 90-576 reaffirms and emphasizes that spirit by placing new and quite specific emphasis on planning and evaluation requirements while retaining the purposes contained in the Act of 1963 and expanding them.

Federal funds have been made available to the States for vocational education by the U. S. Congress every year since 1917. The overall purpose of these and State and local matching funds has been to promote and provide realistic vocational and technical education opportunities to persons preparing for entrance into or to make progress in recognized non-professional occupations.

The State Board for Vocational Education has always been designated by Federal Acts and cooperating State acceptance acts as the sole agency for administering the provisions of a State Plan. All of the Federal Acts require that each Federal dollar be matched with a State and/or local dollar. In most cases, the State Boards have had wide latitude in establishing and carrying out policies of aid to local school districts and other educational agencies and institutions. It has always been the responsibility of a State Board to aid educational agencies in an effective way to implement the purposes for which the funds were provided. The ultimate goal of all State Boards has undoubtedly been to serve, effectively and efficiently, the greatest possible number of persons, youths and adults, with the funds that were available.

Over the years one of the more common criticisms of vocational education has been that the programs were not attuned realistically to the actual job opportunities in the labor force. More specifically, the critics contended that there was overemphasis on agriculture and home economics education and not enough effort and funds directed to the changing and growing labor force demands of industry, business, distribution and the other growing service industries and occupations. Whatever justification there was for such criticism grew out of the fact that up to 1963, the Federal funds appropriated for vocational education were earmarked in specific amounts by occupational education categories, namely, agriculture, home economics, trade and industrial, distributive (in 1936), health occupations (in 1956), and technical education (in 1958). Analysis of the expenditures and enrollments by these categories showed not so much overemphasis on agriculture and home economics education but rather inadequate funds and programs in the other rapidly growing categories.

All of the funds, Federal, State, and local, devoted to vocational education were comparatively small for many years, and consequently, vocational education never really made a substantial quantitative contribution to the total trained manpower demands in the United States. For example, during the five year period, 1964 through 1968, the total Federal and State expenditures for vocational education in Pennsylvania amounted to about $133 million or approximately 7.5% of the Federal and State funds ($1.766 billion) expended for secondary education. Table 1 shows the relative amounts of Federal and State dollars expended for basic education, secondary education, and vocational education, 1964 through 1968. Even though the percentage rose to 11.3% in 1967, such an investment would hardly make a sizable contribution to the estimated annual demand for trained nonprofessional persons as revealed in Chapter V of this report.

The President's Panel of Consultants in 1962 identified the lack of funds as the most important deterrent to the expansion and improvement of vocational education. The Panel's unofficial recommendation to the President and the 88th Congress was for an authorization of more than $1 billion dollars of Federal aid annually to the States. The Panel Report led to the passage of the Vocational Education Act of 1963 which authorized a maximum of $225 million by 1967, less than one-quarter of the estimated need. It should be noted here that the Congress recognized the need but felt that the States could not use the larger amount effectively at that time.

The Vocational Education Act of 1963 did not earmark funds for occupational categories, although it did continue the previous occupational categorical aid under the Smith-Hughes and George-Barden Acts. The Vocational Education Amendments of 1968, P. L. 90-576 has now removed all occupational categorical aid.

TABLE 1

COMPARISON OF FEDERAL AND STATE EXPENDITURES FOR SECONDARY EDUCATION TO FEDERAL AND STATE EXPENDITURES FOR VOCATIONAL EDUCATION IN PENNSYLVANIA, 1964 THROUGH 1968

Fiscal Year	(1) Basic Education Expenditures (Fed. & State)	(2) Secondary Education Expenditures (Fed. & State)	(3) Vocational Education Expenditures (Fed. & State)	% of Secondary Expenditures Devoted to Vocational Education	% Change from Previous Year	
					Secondary Education	Vocational Education
63-64	$ 472,141,037	$ 252,312,170	$ 4,747,204	1.88%		
64-65*	545,170,057	293,519,558	17,414,359	5.93%	16.33%	266.83%
65-66	687,317,345	368,264,633	21,435,275	5.82%	25.46%	23.08%
66-67**	717,615,764	385,503,188	43,576,156	11.30%	4.68%	103.29%
67-68	865,816,211	467,367,591	46,060,099	9.85%	21.23%	5.70%
Total	$3,288,060,414	$1,766,967,140	$133,233,094	7.54%		

*Funds from the Vocational Education Act of 1963, P.L. 88-210, were first used.

**Significant increase of funds from the Vocational Education Act of 1963, P.L. 88-210, occurred.

(1) Statistical Report of the Superintendent of Pennsylvania Public Instruction for the school years ending June 30, 1964-1967 and the unpublished table on financial data for June 30, 1968, Bureau of Statistics.

(2) Statistical Reports of the Pennsylvania Superintendent of Public Instruction for the school years ending June 30, 1964-1967 and the unpublished table on attendance data for June 30, 1968, Bureau of Statistics. (Average Daily Memberships were converted into WADM's and percentages of total costs were prorated for Secondary Education Federal and State Expenditures.)

(3) Annual Reports for Vocational Education, 1964-1966. State Reports for expenditures of funds for Vocational Education by Purpose, 1967 and 1968, Bureau of Vocational, Technical and Continuing Education.

In any case, it was decided that one part of the Pennsylvania study should be devoted to an examination of the impact of the Vocational Education Act of 1963 with its additional funds, new purposes and emphases, upon the Pennsylvania vocational education program especially in terms of expenditures and enrollments. The analyses in this chapter were limited to the data submitted in the official annual reports by the Commonwealth to the U.S. Office of Education. Therefore, the analyses are necessarily gross and deal with expenditures rather than costs because of the unavailability of reliable cost data for vocational education programs. Future or continued studies should make every effort to obtain and analyze reliable costs so that full comparative cost information can be used to assist in making wise program selections from all feasible alternatives.

EXPENDITURES BY SOURCE - 1964 THROUGH 1968

The contribution of each source of funds, Federal, State and local to the 1964 through 1968 grand total provides some insight as to how much of the overall burden is being borne by each level of government. Figure 1 and the supporting data in Table 2 show that the local effort is approximately equal to the Federal and State portions combined. This suggests that some additional State support would ease the burden currently being borne on the limited tax base of many local educational agencies. However, this static view of the expenditures does not provide information concerning developing trends that might alter this relationship.

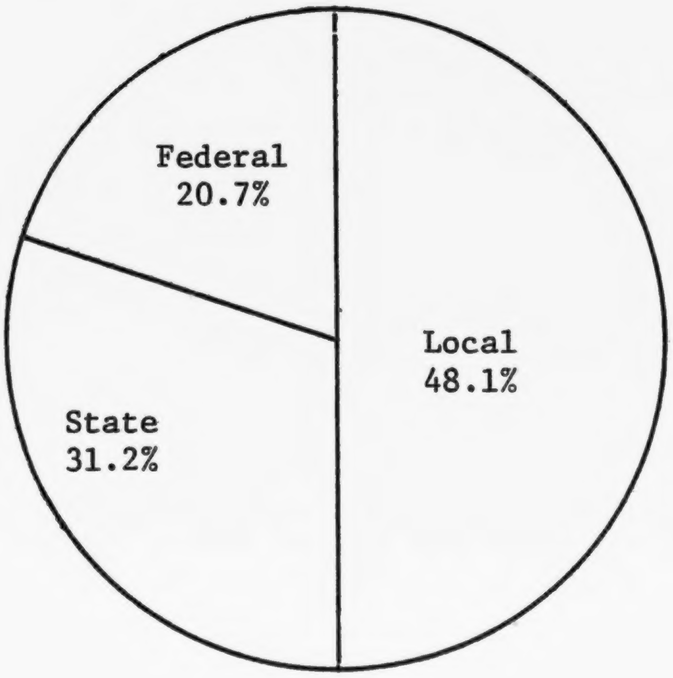


FIGURE 1

TOTAL VOCATIONAL EDUCATION EXPENDITURES
1964 THROUGH 1968 BY SOURCE OF FUNDS

TABLE 2

TOTAL VOCATIONAL EDUCATION EXPENDITURES FROM 1964 THROUGH 1968 BY SOURCE OF FUNDS

Sources	Total Amounts	% of Grand Total
Federal	$52,495,967	20.7
State	$78,989,928	31.2
Local	$121,606,416	48.1
Totals	$253,092,311	100.0

EXPENDITURE TRENDS

In Figure 2, total expenditures for vocational education can be seen to increase sharply year after year. Recently they have approached the 100 million dollar per year mark. Whether or not this amount is adequate depends upon whether all persons who need and desire vocational education find it readily available and whether the needs of Pennsylvania employers are being adequately satisfied.

Federal, State and local expenditures are all increasing on a year-to-year basis. However, Federal and State expenditures appear to be approaching a plateau or leveling-off point. Local expenditures, on the other hand, are still increasing each year. It is possible that Federal funds will increase in future years because of the new vocational education act, P. L. 90-576. An analysis of relative annual proportions will reveal more information about these trends.

Figure 2 shows the proportionate contribution of the Federal government to be in a gradual decline. Although State expenditures vary considerably, the general trend is one of a slightly increasing share of the annual expenditures. When the substantial construction effort peaks, it is possible that the State expenditures might decrease sharply. The slight trend toward proportionate increasing State support could disappear and even reverse itself in future years. This possibility is sufficient reason to begin realistic systematic program planning so that adequate justification can be made for continued and increasing State level funding. To neglect systematic planning now will be to miss an opportunity to make a real contribution to economic growth in Pennsylvania. An interesting phenonenon can be observed in the trend of relative local expenditures. In 1965 when relative Federal and State expenditures increased markedly,

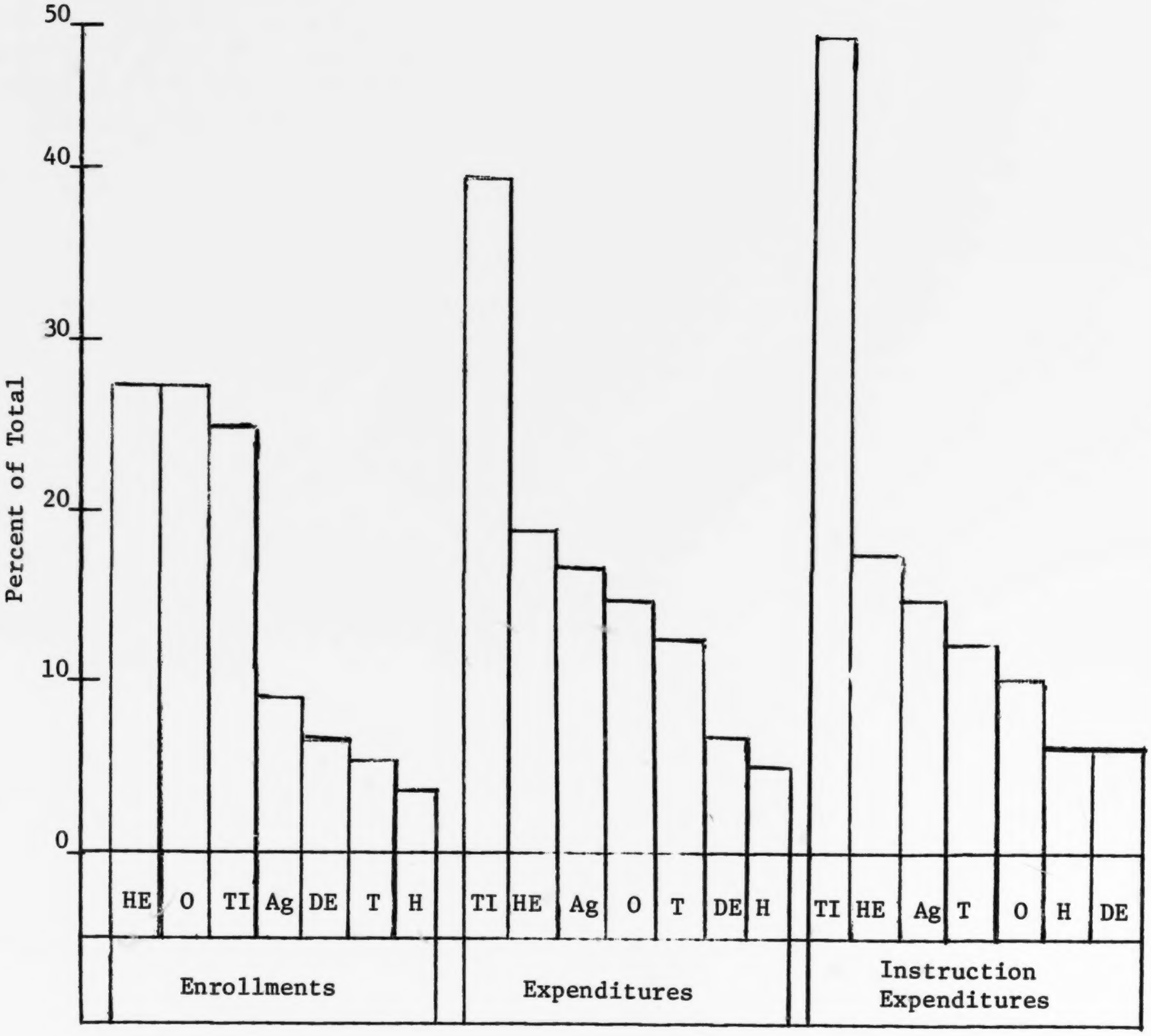


FIGURE 2

TOTAL PROGRAM ENROLLMENTS, EXPENDITURES, AND INSTRUCTIONAL EXPENDITURES BY OCCUPATIONAL CATEGORY IN FISCAL YEARS 1964 THROUGH 1968

TABLE 3

TOTAL VOCATIONAL EDUCATION EXPENDITURES FROM 1964 THROUGH 1968 BY SOURCE OF FUNDS

	1963-1964		1964-1965		1965-1966		1966-1967		1967-1968	
Sources	Amounts	% of An. Total	Amounts	% of An. Total	Amounts	% of An. Total	Amounts	% of An. Total	Amounts	% of An. Total
Federal	$2,764,725	22.4	8,866,678	27.9	12,568,131	31.2	13,804,197	18.7	14,492,236	15.3
State	1,982,480	16.1	8,547,683	26.9	7,119,942	17.7	29,771,960	40.3	31,567,863	33.3
Local	7,577,549	61.5	14,372,701	45.2	20,640,941	51.1	30,247,210	41.0	48,768,015	51.4
Grand Totals	$12,324,754	100.0	$31,787,062	100.0	$40,329,014	100.0	$73,823,367	100.0	$94,828,114	100.0

local expenditures decreased. This trend is duplicated again in 1967 when relative State expenditures surged upwards. This is a good example of how both Federal and State funds serve as "seed" money to stimulate local investment in vocational education. In the long term, the sharply rising curve found in Figure 2 suggests that the local effort will more than carry its share of the financial burden. This has important implications for planning at Federal and State levels, both on a short and long term basis.

Construction, a capital outlay, has been cited above as having influenced the over-all expenditure picture in vocational education. To illustrate the magnitude of this funding activity, Table 4 is included at this point. It is worth noting that this activity accounted for approximately half of the total expenditures for vocational education during the five year period from 1964 through 1968.

TABLE 4

CONSTRUCTION EXPENDITURES IN VOCATIONAL EDUCATION BY SOURCE OF FUNDS, 1965 THROUGH 1968

Source	Totals 1965 - 1968	Fiscal Years (Federal)			
		1965	1966	1967	1968
Total Fed., State & Local	108,042,643	13,519,578	13,490,359	32,117,935	48,914,771
Federal	19,544,418	3,703,404	3,772,773	5,866,340	6,201,901
State	50,246,008	6,112,768	4,036,282	16,453,122	23,643,836
Local *	38,252,217	3,703,406	5,681,304	9,798,473	19,069,034
Federal & State	69,790,426	9,816,172	7,809,055	22,319,462	29,845,737
State & Local	88,498,225	9,816,174	9,717,586	26,251,595	42,712,870

* Includes $8,655,777 total Appalachia Funds, 1965 through 1968

SUMMARY

Several analyses of vocational education funding sources revealed that the role and amount of State expenditures might decrease in coming years unless some effort is made to change the trend. A glance at Table 4 reveals that Pennsylvania has been concentrating on the construction of new facilities for vocational education over the last five years. Approximately $112 million in State, Federal, and local funds were invested in new physical plants, 1965 through 1968. Of that amount approximately $75 million was Federal and State funding. Currently peak construction expenditures appear to have been reached, after which a sharp drop might be expected. A more detailed treatment of the construction expenditures is contained in a later segment of this report.

Local expenditures for vocational education are steadily increasing, but the relative share of the total burden is remaining fairly constant. Federal expenditures appear to have reached a stabilized level. Relatively, Federal expenditures are now declining. It is hoped that the Vocational Education Amendments of 1968 will favorably alter this trend.

Planning efforts need to be made now in order to maintain or increase the current State expenditure level for vocational education. Formulation of systematic plans to expand and upgrade the quality of vocational education in the light of labor market needs and job requirements offers the best logic to support these efforts.

It is possible that measures could be taken to eliminate the time lag in the local effort that occurs when Federal or State expenditures increase. Advance planning and early close coordination with the local districts should alleviate this condition. Such timely activity could increase the initial effectiveness of increased funding by Federal and/or State governments.

The first part of this chapter has been concerned primarily with broad categories of funding sources. The next part uses the aggregate figures to disclose their application to the various vocational education purposes by relating the expenditures to the enrollments in the various occupational programs.

COMPARISON OF ENROLLMENTS AND EXPENDITURES BY OCCUPATIONAL CATEGORIES, 1964 THROUGH 1968

In order to get a clear view of the Pennsylvania vocational education program, a number of analyses were undertaken for the five year period, 1964 through 1968, beginning with the year immediately preceding the advent of additional funds under P.L. 88-210 and the next four years of Federal funding from all three Acts, Smith-Hughes, George Barden and the Vocational Education Act of 1963.

The first analysis is designed to show the proportions of the total expenditures that were applied to each of the occupational programs. Expenditures were compared with enrollments to determine the relative support in each occupational category. A further comparison of total expenditures revealed the relationship existing between the total funds expended in the category and how much was devoted to the instruction process itself.

Enrollments and the two types of expenditure breakdowns were totaled for the five-year period between 1964 and 1968 and the portion attributed to each occupational category was calculated as a percentage. Enrollments were reported as adult, secondary, postsecondary, and special needs students over the entire five-year period. All expenditures, Federal, State, and local were totaled for the five-year period from the annual financial reports as submitted by the Commonwealth to the Office of Education. Instructional expenditures included such items as the salaries and travel of vocational teachers, and instructional supplies. They _do not_ include expenditures for administration, research, supervision, teacher education, guidance, construction, and instructional equipment.

Figure 2 and Table 5 show the enrollment and expenditure relationships among the various occupational education programs for the whole period, 1964 through 1968.

TABLE 5

TOTAL ENROLLMENTS, EXPENDITURES, AND INSTRUCTION EXPENDITURES BY OCCUPATIONAL CATEGORY, 1964 THROUGH 1968

Occupational Categories	Total Enrollments			Total Expenditures			Instructional Expenditures		
	Number	% of Total	Rank	Amount	% of Total	Rank	Amount	% of Total	Rank
Agriculture	68,235	7.8	4	$ 15,389,124	14	3	$11,645,885	13	3
Distributive	45,048	5.2	5	6,257,312	5	6	5,102,403	5	6
Home Economics	236,127	27.0	2	17,273,291	16	2	14,497,098	16	2
Health	21,210	2.4	7	5,247,151	4	7	4,533,284	5	7
Office*	241,878	27.7	1	15,026,092	13	4	5,730,411	6	5
Technical	43,350	5.0	6	11,754,791	10	5	7,721,773	8	4
Trade & Industry	218,141	24.9	3	53,565,139	38	1	43,926,509	47	1
Totals	873,989	100		114,874,270	100		93,157,363	100	

*Enrollments in office occupations do not include figures for 1964 and 1965 because reporting procedures had not been effected. Expenditures in Office Occupations do not include 1964 amounts because Federal funds were not available until 1965. Instructional Expenditures in Office Occupations do not include 1964 and 1965 amounts because that information was not available.

GENERAL RELATIONSHIPS

Enrollments, expenditures, and instructional expenditures when viewed as variables can be seen to have different rankings by occupational programs. This suggested the determination of relationships between the variables. For example, did enrollments increase when instructional expenditures increased? The Spearman rank-order correlation coefficient was computed for various combinations of the variables.

As might be expected, enrollments and expenditures are significantly and positively related. That is to say, enrollments can be reasonably expected to increase as expenditures increase. Similarly as total expenditures increased, instructional expenditures also increased. However, the relationship between enrollments and instruction expenditures failed to reach the P / .05 level of significance, although the correlation is quite high (r= .577). More simply stated, when instructional expenditures increased, enrollments did not necessarily increase in the same proportion. To summarize, the enrollments can be expected to fluctuate with the total expenditures, but it does not follow that the same condition will occur when the instructional expenditures increase. For example, it can be ascertained from Table 5 and Figure 2 that although agriculture served 8% of the total enrollments in the five-year period, it accounted for 13% of the total instructional expenditures. Similar relationships in technical, home economics, health, and office occupations education on the basis of enrollments and instructional expenditures are in varied proportions. Further analysis of a more refined nature would be needed to disclose the underlying causes of these variations.

ENROLLMENT RELATIONSHIPS

Home economics and office education are the largest occupational education programs in terms of enrollment, with trade and industrial education a close second. Significant is the fact that technical education and health occupations education have the lowest enrollments even though there is an acute shortage of trained manpower in both these fields. Other details can be easily determined from Figure 2 and Table 5 .

EXPENDITURE RELATIONSHIPS

Figure 2 shows the greatest expenditures occurring in trade and industrial education. This is no doubt due to the nature of the industrial training process involved. Trade and technical teachers salaries are generally higher and materials and equipment are generally more expensive than in the other occupational categories. Health occupations, distributive and technical education expenditures on the other hand are comparatively small, which again is revealing in light of the nationwide pressing demand for trained manpower in these fields. Other relationships can be readily determined by referring to Figure 2 and Table 5 .

INSTRUCTIONAL EXPENDITURE RELATIONSHIPS

Instructional expenditure relationships are similar to those found for total expenditures. Trade and industrial education is the highest with health occupations and distributive education being the lowest. Again Figure 2 and Table 5 can be consulted for analysis of other relationships.

YEARLY ENROLLMENT-EXPENDITURE TRENDS BY OCCUPATIONAL CATEGORIES

As in most gross portrayals of complex entities, important characteristics are obscured or distorted. To offset this somewhat, trends in the year to year relationships between the occupational categories were analyzed by enrollments, expenditures, and instructional expenditures. The results are intended to determine whether Pennsylvania's vocational education enrollments and expenditures are or are not related and to indicate the general direction of the program in terms of relative growth or contraction.

TABLE 6

YEARLY ENROLLMENTS, EXPENDITURES, AND INSTRUCTIONAL EXPENDITURES IN OCCUPATIONAL CATEGORIES AS PERCENTS OF THE YEARLY TOTALS, 1964 THROUGH 1968

Fiscal Years	1964			1965			1966			1967			1968		
	E	EX	IE	E	EX	IE	E	EX	EI	E	EX	IE	E	EX	EI
Agriculture	9.1	17.7	18.4	7.5	13.2	17.0	7.0	13.0	13.7	6.5	12.3	10.8	5.8	10.2	10.0
Distributive	11.3	4.1	3.9	4.9	3.5	4.3	3.5	3.8	4.7	2.5	5.0	5.1	6.4	6.6	7.2
Home Economics	33.4	18.3	18.3	24.5	14.3	18.1	23.3	14.1	17.7	23.9	12.9	14.0	23.4	13.1	14.3
Health	1.2	4.8	3.7	2.2	3.2	3.6	2.1	2.3	2.6	1.9	5.6	6.7	2.3	4.5	5.5
Office	----	----	----	37.3	14.3	----	37.5	16.8	1.8	37.7	11.0	6.5	38.7	12.9	9.8
Technical	5.3	11.9	7.0	3.7	13.7	9.4	4.4	7.8	10.1	4.6	7.8	7.7	5.0	8.8	8.1
Trade &Industrial	39.7	43.2	48.7	19.9	37.8	47.6	22.2	42.2	49.4	22.9	45.4	49.2	18.4	43.9	45.1

YEARLY ENROLLMENT-EXPENDITURE TRENDS BY OCCUPATIONAL CATEGORIES

The gross picture of vocational education in terms of occupational category relationships during the five-year period 1965 through 1968 has been discussed. As in most gross portrayals of complex entities, important characteristics are obscured or distorted. To offset this somewhat, trends in the year to year relationships between the occupational categories were analyzed by enrollments, expenditures, and instructional expenditures. The results are intended to determine whether Pennsylvania's vocational enrollments and expenditures are or are not related and to indicate the general direction of the program in terms of relative growth or contraction.

ENROLLMENT TRENDS

Table 6 can be consulted to observe the trends being discussed. Relatively speaking, agriculture, home economics, and trades and industry are occupational training programs in which a decline is occurring. Office, technical, and health are categories that have remained relatively stable. Distributive education appears to have experienced a period of constant relative decline from 1964 through 1967, but a strong upward trend appears to have materialized in 1968. These trends are an overall reflection of what the various occupational training programs are experiencing in terms of relative growth. Corresponding expenditure trends are also discussed.

EXPENDITURE TRENDS

Even though some occupational training programs require greater expenditures for the same number of enrollees, the expenditure trend should approximate the enrollment trend in their respective categories. Some critics of vocational education have alluded that this expected relationship does not exist. This analysis presents the Pennsylvania data relevant to this criticism in two steps: (1) the expenditure trends; (2) the consistency of the enrollment and expenditure trends. Table 6 can be consulted for supporting or additional information.

First, the expenditure trends themselves should be understood. Relatively speaking once again, the proportion of the total expenditures in agriculture, home economics, and technical education programs are decreasing. Those in office, trades and industry and health are remaining constant or within a fairly narrow range. The only clearly visible positive trend can be seen in distributive education where the proportion of expenditures appears to be accelerating. These trends become more meaningful when they are compared with the enrollment trends.

Table 6 shows that the enrollment and expenditure trends in all areas are fairly consistent except in the technical and trade and industrial education programs. This suggests quite strongly that the enrollment expenditure relationships are logically related. In the trade and industrial category, the proportionate enrollment dropped between 1964 and 1965 but thereafter remained fairly constant. Obviously, the relative decrease occurred because office education assumed a prominent role in the total program. Additional analysis is requred to determine whether the proportionate drop resulted from a special set of circumstances and at what level it occurred. Technical education enrollments were very stable. However, the proportion of the available funds that were expended for that program dropped off, especially between 1965 and 1966.

Agricultural education enrollments and both types of expenditures show decreasing trends proportionately that are almost identical. The criticism that education of individuals in increasing numbers for a labor market that is progressively shrinking does not apply for the most part in Pennsylvania. Relative to the total situation, the production agricultural education program is more closely attuned to the actual labor market demand in that field than any of the other occupational training programs. The analyses also reveals that increased funds are applied to instructional costs proportionately. This can be verified by studying the similarity in trends over the years between expenditures and instructional expenditures in a given occupational category.

A critical question is posed by the preceding analyses. Since enrollments respond to expenditures, are the expenditures being made in the appropriate occupational categories suggested by the demands of the labor market? These analyses show clearly that desirable substantial changes in program emphasis have not taken place, particularly with respect to those occupational areas having critical demands, especially the continuously growing demands for trained manpower in the health, technician, and distributive occupations.

Another critical question has to do with the expenditures and enrollments in the occupational education programs in terms of the newer purposes of the Vocational Education Act of 1963, namely, secondary, postsecondary, adult, and special needs, 1964 through 1968.

NEW PURPOSES IN THE VOCATIONAL EDUCATION ACT OF 1963

The Vocational Education Act of 1963 spelled out new purposes which focused the attention of vocational educators on people to be served in and out of the formal school system. These newer purposes were concerned with the levels of vocational education that are available to people in need of such services. Knowledge of a variety of relationships and trends is necessary if one is to understand whether the programs are in fact carrying out the purposes of the legislation and the funds. In the analysis that follows, an overview in terms of the newer purposes is provided as each occupational category is scrutinized separately.

STRUCTURE OF VOCATIONAL EDUCATION IN PENNSYLVANIA

Examination of Figures 3 and 4 and Table 7 reveals that by far the substantial enrollment in the Commonwealth's vocational education program is at the secondary level. Adult enrollments, enrollments of individuals with special needs, and postsecondary enrollments follow in that order. Relative to the others, special needs and postsecondary enrollments are a minor part of the total program. Similarly, expenditures for secondary school programs are dominant and adult, postsecondary, and special needs program expenditures follow in that order.

The added emphasis placed on the special needs category in the new vocational amendments, P.L. 90-576, calls attention to the serious deficiency in this aspect of the Pennsylvania program.

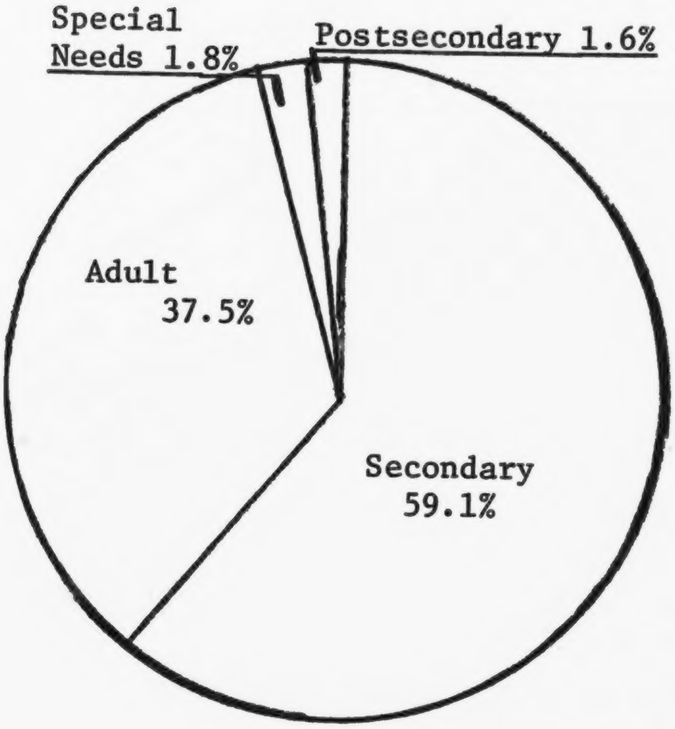


FIGURE 3

TOTAL ENROLLMENTS FROM 1964 THROUGH 1968 DIVIDED INTO SECONDARY, POSTSECONDARY, ADULT AND SPECIAL NEEDS

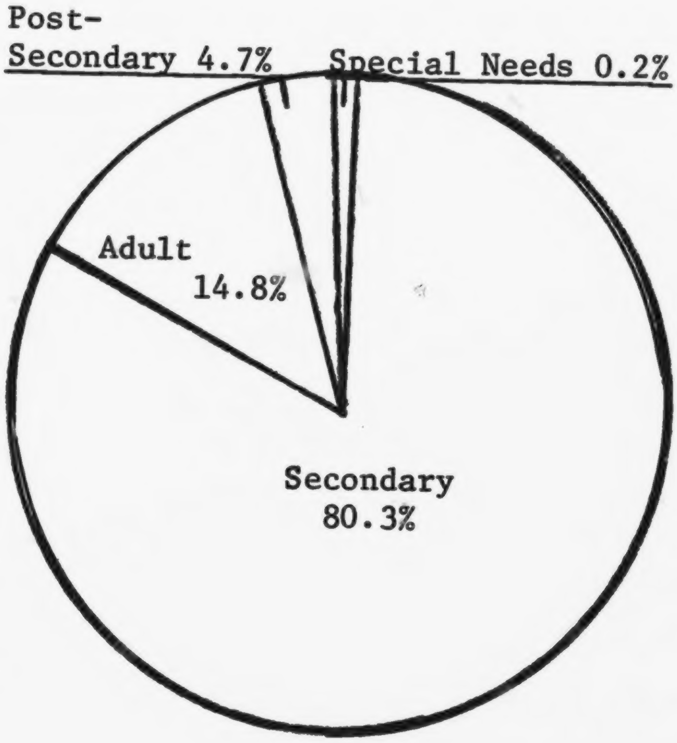


FIGURE 4

TOTAL EXPENDITURES FROM 1964 THROUGH 1968 DIVIDED INTO SECONDARY, POSTSECONDARY, ADULT AND SPECIAL NEEDS

TABLE 7

TOTAL SECONDARY, POSTSECONDARY, ADULT AND SPECIAL NEEDS VOCATIONAL EDUCATION PROGRAM ENROLLMENTS AND EXPENDITURES, 1964 THROUGH 1968

Levels of Programs	Enrollments		Expenditures	
	Amount	% of Total	Amount	% of Total
Secondary	516,760	59.1	$74,133,393	80.3
Postsecondary	13,905	1.6	4,311,410	4.7
Adult	327,804	37.5	13,705,075	14.8
Special Needs	15,632	1.8	225,731	0.2
Totals	874,101	100.0	$92,375,609	100.0

PROGRAM LEVELS BY OCCUPATIONAL CATEGORIES

In the preceding analysis, Pennsylvania's vocational education program was analyzed by various program levels, and it was determined that secondary level programs predominate in terms of enrollments and expenditures. The next logical inquiry is to analyze these program levels in terms of the seven major occupational categories. This information is a prerequisite to the assessment of the program as it relates to the matching of vocational education outputs with labor-market needs. It should be kept in mind that these are total figures for the five-year period, 1964 through 1968, therefore, they will tend to be very conservative in terms of sensitivity to minor fluctuations within occupational categories.

SECONDARY LEVEL PROGRAMS

Vocational education at the secondary level serves students who are enrolled in employment objective programs. They are usually enrolled in grades 10 through 12, although there are exceptions where occupational training begins in grade 9 or 11. The nature and the length of program vary according to the requirements of the occupation for which the student is preparing.

An overview of Pennsylvania's vocational education program at the secondary level can be seen in Table 8 and Figure 5.

TABLE 8

TOTAL SECONDARY ENROLLMENTS AND SECONDARY EXPENDITURES BY OCCUPATIONAL CATEGORY, 1964 THROUGH 1968

Occupational Category	Enrollments		Expenditures	
	Number	% of Total	Amount	% of Total
Agriculture	48,732	9.4	$ 9,919,747	13.4
Distributive	21,347	4.1	4,661,174	6.3
Home Economics	130,628	25.3	12,664,933	17.1
Health	1,940	0.4	711,452	1.0
Office	199,986	38.7	2,079,139	2.8
Technical	20,319	4.0	6,732,470	9.0
Trades & Industry	93,808	18.1	37,364,478	50.4
Totals	516,760	100.0	$74,133.393	100.0

Enrollments in secondary level vocational programs are concentrated in the office, home economics, and trade and industrial education categories. Health occupations education is conspicuously the smallest program at the secondary level eventhough it is a critically short manpower area.

Expenditures follow the same general pattern as enrollments, with the exception of office. A statistical test of the relationship between enrollments and expenditures, office excluded, shows it to be significant (P / .05).

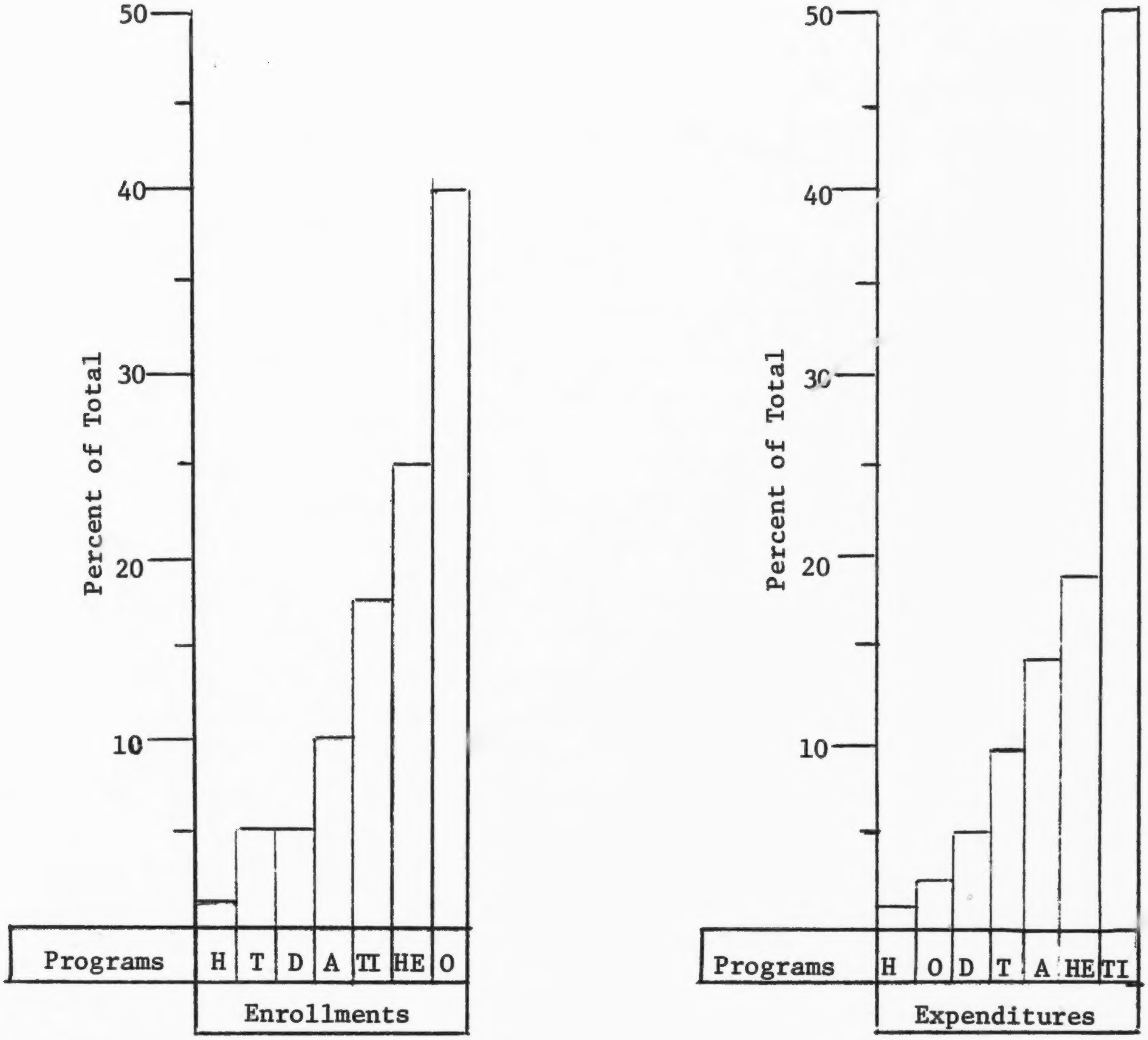


FIGURE 5

TOTAL SECONDARY ENROLLMENTS AND EXPENDITURES
BY OCCUPATIONAL CATEGORIES, 1964 THROUGH 1968

POSTSECONDARY LEVEL PROGRAMS

Postsecondary vocational education programs are offered in the 13th and 14th years of some secondary schools, community colleges, off-campus centers of colleges and universities and private trade, technical and business schools. The data shown in Table 9 and Figure 6 are those of the few secondary school 13th and 14th grade programs and the community colleges.

TABLE 9

TOTAL POSTSECONDARY ENROLLMENTS AND POSTSECONDARY EXPENDITURES BY OCCUPATIONAL CATEGORIES, 1964 THROUGH 1968

Occupational Category	Enrollments		Expenditures	
	Number	% of Total	Amount	% of Total
Agriculture	31	0.2	$ 33,670	0.8
Distributive	658	4.7	143,700	3.3
Home Economics	115	0.8	57,758	1.4
Health	282	2.0	11,000	0.2
Office	6,666	48.0	2,349,528	54.5
Technical	2,219	16.0	30,685	0.7
Trade&Industrial	3,934	28.3	1,685,069	39.1
Totals	13,905	100.0	$4,311,410	100.0

Office, trade and industrial, and technical education program enrollments comprised the largest part of postsecondary enrollments. Agricultural and home economics enrollments were markedly insignificant at the postsecondary level.

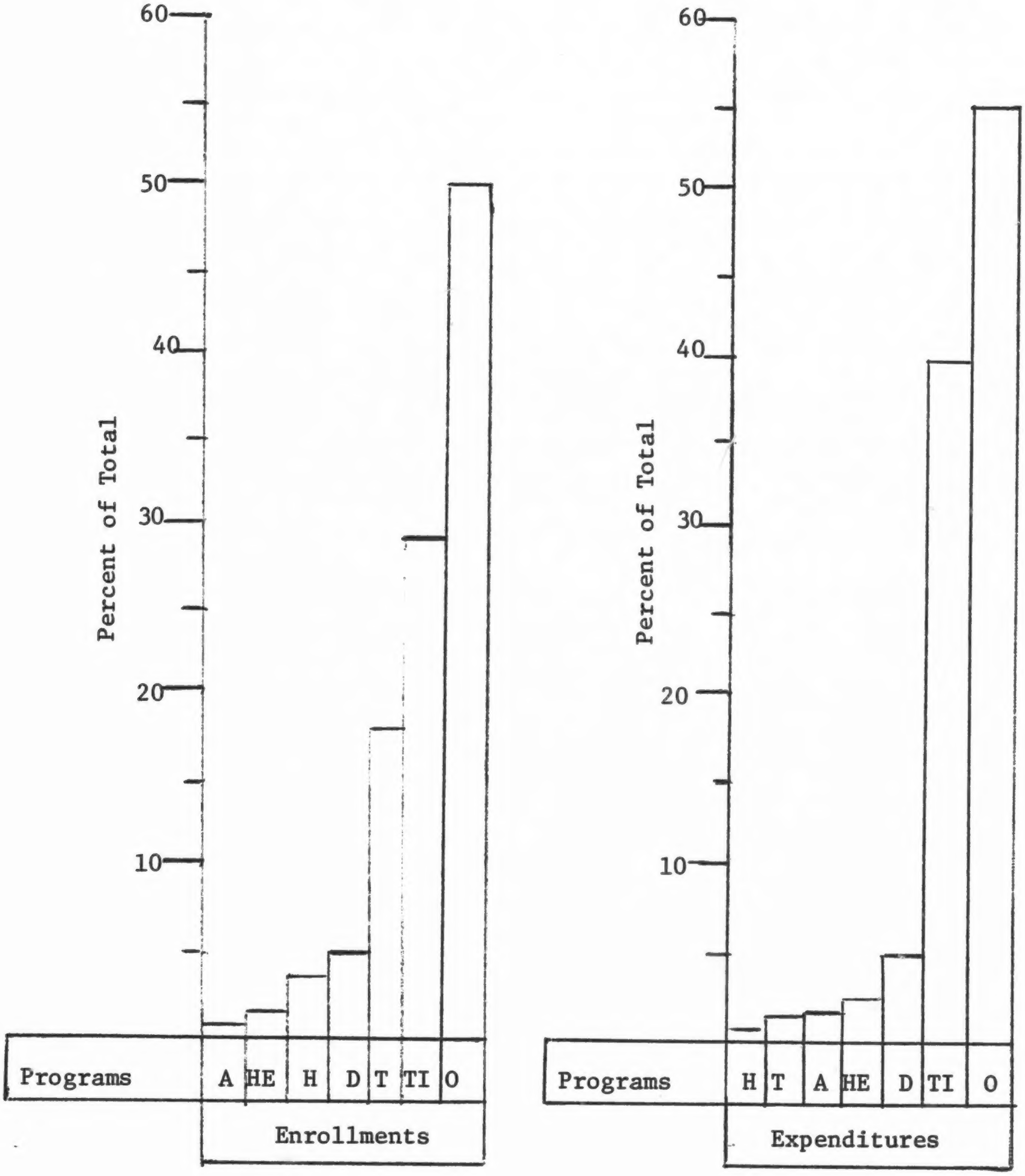


FIGURE 6

TOTAL POSTSECONDARY ENROLLMENTS AND EXPENDITURES BY OCCUPATIONAL CATEGORIES, 1964 THROUGH 1968

Expenditures for the postsecondary level programs have been largely attributed to the office and trades and industrial education programs. Health, technical, agriculture and home economics education programs accounted for a comparatively insignificant part of the postsecondary expenditures during the five-year period.

One glaring inconsistency between postsecondary enrollments and expenditures is that technical education programs accounted for 16% of the total enrollments at the postsecondary level and the corresponding expenditures amounted to less than 1% of the total expenditures at that level. This apparent discrepancy could have resulted from the possibility that those expenditures were charged to trade and industrial education.

ADULT VOCATIONAL EDUCATION PROGRAMS

Vocational education programs for adults vary greatly in nature and duration because they are usually designed to update skills and technical knowledge of those already employed. However, an increasing number of adults are enrolled in courses which prepare them for entrance into an occupation other than their daily employment. Enrollment characteristics of the adult-level program are shown in Table 10 and Figure 7.

TABLE 10

TOTAL ADULT ENROLLMENTS AND EXPENDITURES BY OCCUPATIONAL CATEGORIES, 1964 THROUGH 1968

OCCUPATIONAL CATEGORY	ENROLLMENTS NUMBER	% OF TOTAL	EXPENDITURES AMOUNT	% OF TOTAL
Agriculture	17,166	5.2	$ 1,692,468	12.4
Distribution	28,027	8.6	71,798	0.6
Home Economics	105,144	32.1	1,774,407	13.0
Health	15,872	4.8	3,810,832	27.8
Office	34,901	10.6	519,990	3.8
Technical	20,600	6.3	958,618	6.9
Trade and Industry	106,094	32.4	4,876,962	35.5
TOTALS	327,804	100.0	$13,705,075	100.0

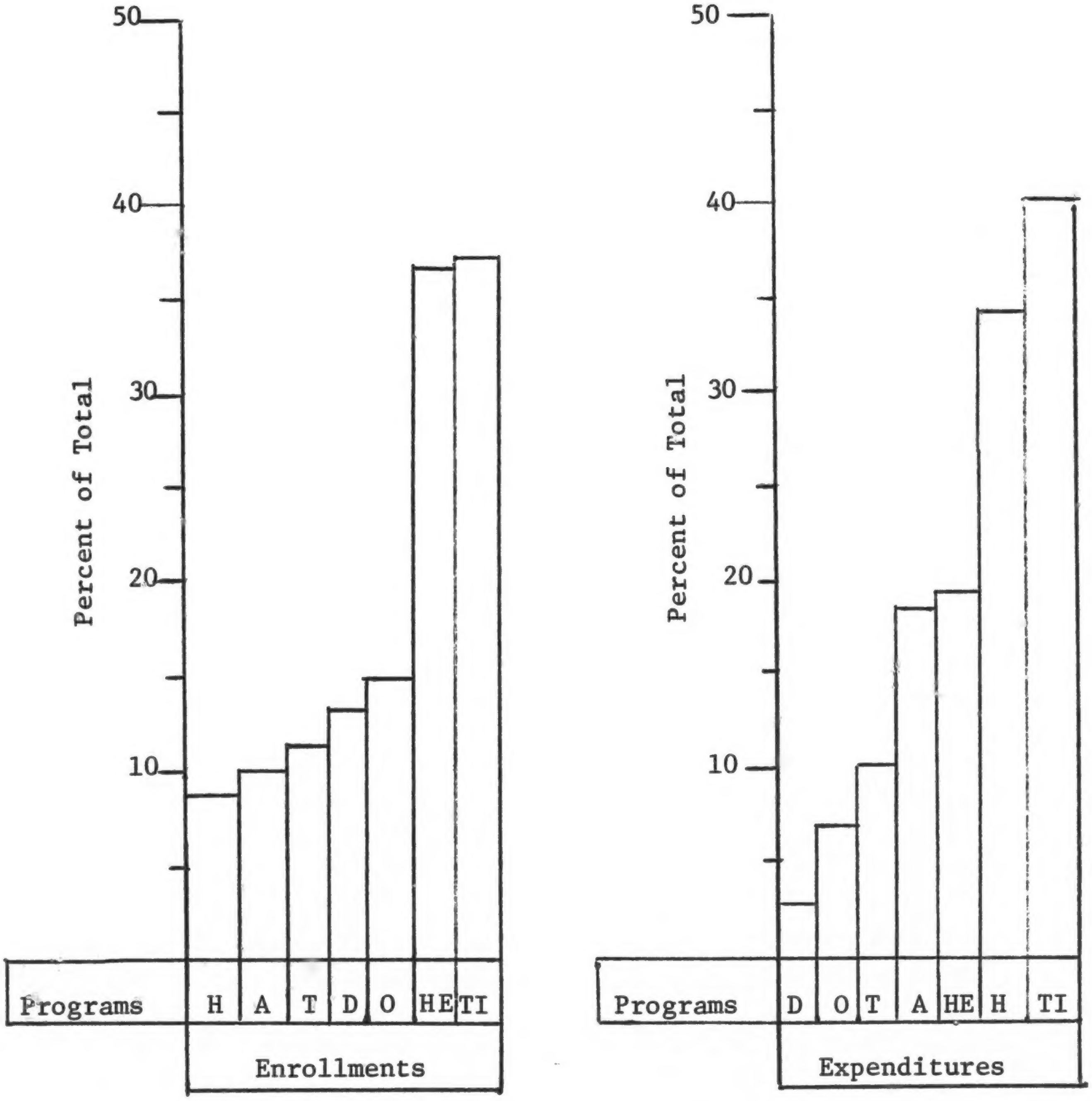


FIGURE 7

TOTAL ADULT ENROLLMENTS AND EXPENDITURES
BY OCCUPATIONAL CATEGORIES, 1964 THROUGH 1968

Home economics and trades and industrial adult enrollments accounted for more than 60% of the total enrollments during the five-year period, while health and agricultural adult enrollments together do not account for 10%. Looking at expenditures, the health occupations programs account for 27.8% of the total expended for adult programs with less than five percent of the enrollments. This apparent disparity exists because the health programs are largely one year in duration for licensed practical nurses, a comparatively high cost program.

The varied duration of adult programs in all programs distorts any relationship postulated on the basis of rank. Data across the categories is not compatible. Only relationships in terms of number of people served should be inferred from the enrollment data, and only relationships in terms of amount invested in occupational programs should be inferred from the expenditure data. It would be a significant improvement to have adult program enrollment data supported by a breakout in terms of student hours of instruction. This would facilitate cross comparisons of enrollments and expenditures.

SPECIAL NEEDS PROGRAMS FOR THE DISADVANTAGED

Programs to meet the special needs of the socioeconomic disadvantaged receives emphatic attention in the recently passed amendments to P.L. 88-210. This is understandable since our society has never been faced with critical needs of the disadvantaged such as those experienced in recent years. Attending to some of the special needs of segments of our society and to the special needs of individuals within those segments has been designated as a responsibility of vocational educators. This analysis is intended to present the results of five years of special needs programs in Pennsylvania. From this data the areas requiring special attention can be identified.

Table 11 shows the cumulative result of the special needs programs by occupational categories. Several characteristics of the data are striking. In five years it seems that the effort to reach people with special needs was generally unsuccessful. (The fact that there are many persons in Pennsylvania having special needs is disclosed in Chapter XIII). This is made quite apparent in Table 7 also where it can be seen that special needs programs accounted for only 1.8% of the total five-year enrollment, and less than 1% of the total expenditures. The trade and industrial education programs involved more than 15 times the number of these individuals than the other six occupational categories combined.

Expenditure data for special needs programs is noticable because of apparent disparities. Paradoxically, the programs having enrollments reported are the programs having no expenditures; the only program without enrollments reported is the only program having expenditures reported. It is essential that this facet of the program be examined thoroughly and that appropriate remedial action be taken to correct the enrollment data reporting and accounting procedures in this program.

Having examined the enrollments and expenditures in the various educational levels of programs by the occupational categories, it remains only to look at the trends in the occupational education programs year by year in a finer analysis of each category to have a fairly complete understanding of the vocational program in Pennsylvania during the past five years.

TABLE 11

TOTAL ENROLLMENTS AND EXPENDITURES IN SPECIAL NEEDS PROGRAMS BY OCCUPATIONAL CATEGORIES, 1964 THROUGH 1968

Occupational Categories	Enrollments		Expenditures	
	Number	% of Total	Amount	% of Total
Agriculture	21	0.1	$ 000	0.0
Distributive	000	0.0	225,731	100.0
Home Economics	240	1.5	000	0.0
Health	374	2.4	000	0.0
Office	325	2.1	000	0.0
Technical	14	0.1	000	0.0
Trade & Industrial	14,658	93.8	000	0.0
Totals	15,632	100.0	$225,731	100.0

AGRICULTURE EDUCATION

Agriculture education has been primarily a secondary level program in terms of enrollments as can be seen in Figures 8 and 9. The postsecondary portion and the special needs enrollments were so insignificant in light of the whole program that they were less than 1/10 of one percent and therefore are not shown. These program deficiencies seem to reveal lack of attention to the urgent needs of socioeconomic disadvantaged youth and adults in the rural areas of Pennsylvania as reported in Chapter XIII.

Other leads to be gained from analysis of agriculture education data are the need for more emphasis and effort on adult and young farmer programs, and in the off-farm agriculture technician occupations particularly at the postsecondary level.

TABLE 12

PERCENTS OF TOTAL AGRICULTURAL EDUCATION ENROLLMENTS AND CORRESPONDING EXPENDITURES, BY INSTRUCTIONAL LEVEL, 1964 THROUGH 1968

Instructional Levels	Enrollments		Expenditures	
	Number	% of Total	Amount	% of Total
Secondary	48,732	71.4	$ 9,919,747	85.2
Postsecondary	31	0.0	33,670	0.3
Adult	19,451	28.6	1,692,468	14.5
Special Needs	21	0.0	000	0.0
Totals	68,235	100.0	$11,645,885	100.0

Figure 8

Percents of Total Enrollments
Agricultural Education
by Instructional Level,
1964 through 1968

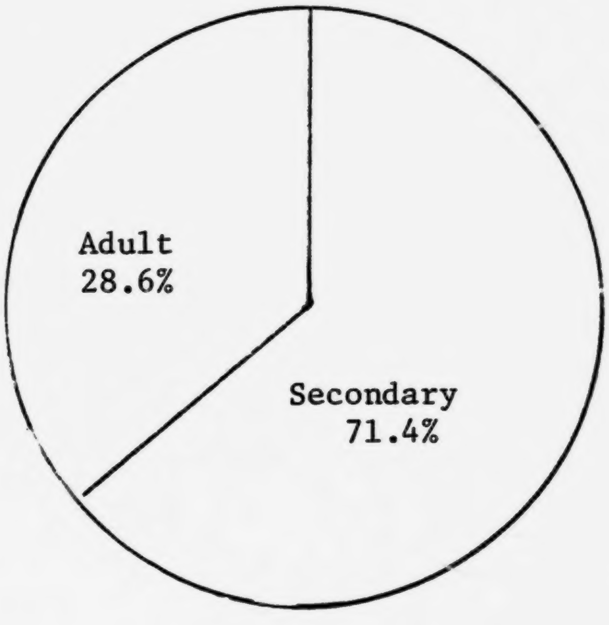
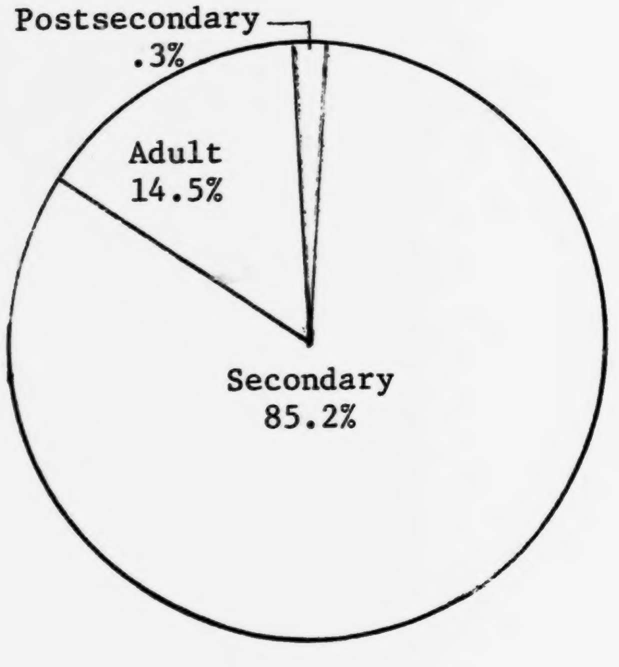


Figure 9

Percents of Total Expenditures
Agricultural Education
by Instructional Level,
1964 through 1968



Although the agricultural education enrollments increased only slightly between 1964 and 1968, they decreased considerably as a percent of the total each year. Whereas the enrollments were more than 12% of all enrollments in 1964, they dropped to less than 6% in 1968. The total expenditures for agricultural education almost doubled in the 5 years but decreased in share from almost 18% in 1964 to 10% in 1968. The instructional expenditures dropped from 18.4% in 1964 to 10% of total instructional expenditures in 1968. Even with these decreases percentage-wise, it should be noted that the instructional expenditures more than doubled while the increase in enrollment was little more than 1% between 1964 and 1968. Table 13 reveals the trends in the program through the five year period.

TABLE 13

ANNUAL AGRICULTURAL EDUCATION ENROLLMENTS, EXPENDITURES, AND INSTRUCTIONAL EXPENDITURES AS PORTION OF YEARLY TOTAL, 1964 THROUGH 1968

Fiscal Years	Enrollments		Expenditures		Instructional Expenditures	
	Number	% of Annual Total	Amount	% of Annual Total	Amount	% of Annual Total
1964	13,458	12.2	$ 2,172,269	17.7	$ 1,908,826	18.4
1965	13,899	11.7	2,340,257	13.2	1,968,106	17.0
1966	13,524	6.9	2,961,104	13.0	2,035,255	13.7
1967	13,728	6.4	3,778,870	12.3	2,548,261	10.8
1968	13,626	5.8	4,136,624	10.2	3,185,437	10.0
Totals	68,235		$15,389,124		$11,645,885	

HOME ECONOMICS EDUCATION

Home economics education enrollments shown in Table 14 and Figure 10 were primarily in adult and secondary programs. Conspicuously small is the special needs enrollment, an area recognized in most rural and urban socioeconomic studies as being critical not only to the people directly concerned, but to the nation as a whole.

Table 14 and Figure 11 shows the secondary and adult levels to be responsible for the largest part of the home economics program expenditures. However, secondary level expenditures are about 7 times greater than adult expenditures. Obviously, the adult courses are of comparatively short duration and therefore much less costly. The same general program development needs exist in home economics as for agriculture, postsecondary, and special needs.

TABLE 14

PERCENTS OF TOTAL HOME ECONOMICS EDUCATION ENROLLMENTS AND CORRESPONDING EXPENDITURES, BY INSTRUCTIONAL LEVEL, 1964 THROUGH 1968

Instructional Levels	Enrollments		Expenditures	
	Number	% of Total	Amount	% of Total
Secondary	130,628	55.3	$12,664,933	87.4
Postsecondary	115	0.1	57,758	0.4
Adult	105,144	44.5	1,774,407	12.2
Special Needs	240	0.1	0	0.0
Totals	236,127	100.0	$14,497,098	100.0

Figure 10

Percents of Total Enrollments
Home Economics Education
by Instructional Level,
1964 through 1968

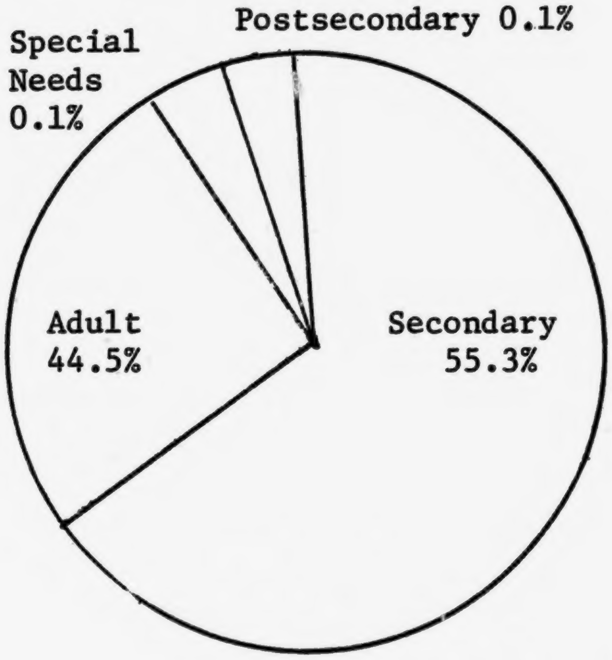
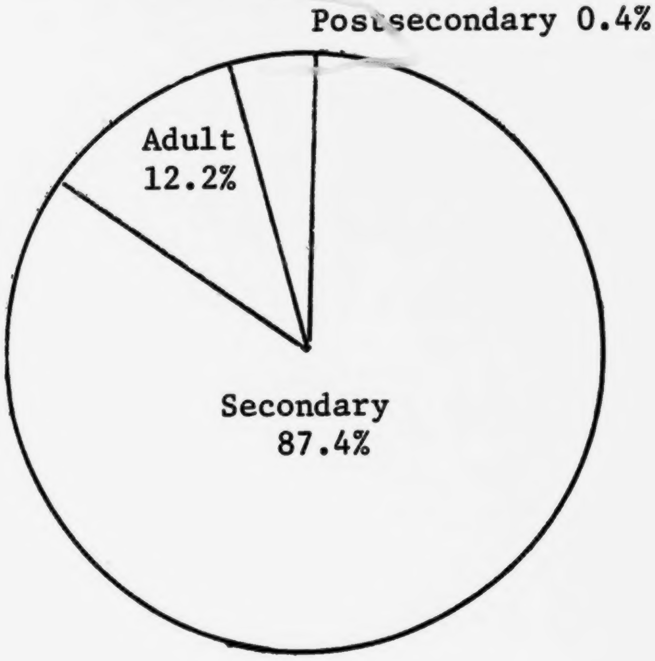


Figure 11

Percents of Total Expenditures
Home Economics Education
by Instructional Level
1964 through 1968



Home Economics education enrollments and expenditures also decreased considerably as percents of the total program. The enrollments were 23.5% of the total in 1968 as against 37.1% in 1964. Total expenditures decreased from 18.3% to 13.1%, but instructional expenditures had a much smaller decrease, only 4% in the 5 year period. Both total and instructional expenditures more than doubled in the 5 years while the enrollments increased about 35%. Table 15 provides more detailed information from which finer analysis can be made of the 5 year trends.

TABLE 15

ANNUAL HOME ECONOMICS EDUCATION ENROLLMENTS, EXPENDITURES, AND INSTRUCTIONAL EXPENDITURES AS PORTION OF YEARLY TOTAL, 1964 THROUGH 1968

	Enrollments		Expenditures		Instructional Expenditures	
	Number	% of Annual Total	Amount	% of Annual Total	Amount	% of Annual Total
1964	40,753	37.1	$ 2,253,160	18.3	$ 1,898,585	18.3
1965	45,052	38.0	2,529,995	14.3	2,099,842	18.1
1966	44,757	22.7	3,215,044	14.1	2,629,711	17.7
1967	50,613	23.6	3,963,765	12.9	3,285,232	14.0
1968	54,952	23.5	5,311,327	13.1	4,583,728	14.3
Totals	236,127		$17,273,291		$14,497,098	

DISTRIBUTIVE EDUCATION

Enrollments in distributive education can be seen in Table 16 and Figure 12 to be fairly well proportioned between secondary and adult programs. As in the other programs, there has been a minimum program development at the postsecondary level and in special needs programs.

Expenditures, on the other hand, are seen in Table 16 and Figure 13 to be attributable mostly to secondary level programs. Considering that only 2% of the total distributive education expenditures in the five-year period occurred for adult level programs, it suggests that many of the adult enrollments were in programs of very short-duration. Both the postsecondary and special needs programs should be expanded greatly to meet well-identified critical needs of people.

TABLE 16

PERCENTS OF TOTAL DISTRIBUTIVE EDUCATION ENROLLMENTS AND CORRESPONDING EXPENDITURES BY INSTRUCTIONAL LEVEL, 1964 THROUGH 1968

Instructional Levels	Enrollments		Expenditures	
	Number	% of Total	Amount	% of Total
Secondary	21,347	47.4	$4,661,174	91.0
Postsecondary	658	1.5	143,700	3.0
Adult	23,043	51.1	71,798	2.0
Special Needs	0	0	225,731	4.0
Totals	45,048	100.0	$5,102,403	100.0

Figure 12

Percents of Total Enrollments
Distributive Education
by Instructional Level
1964 through 1968

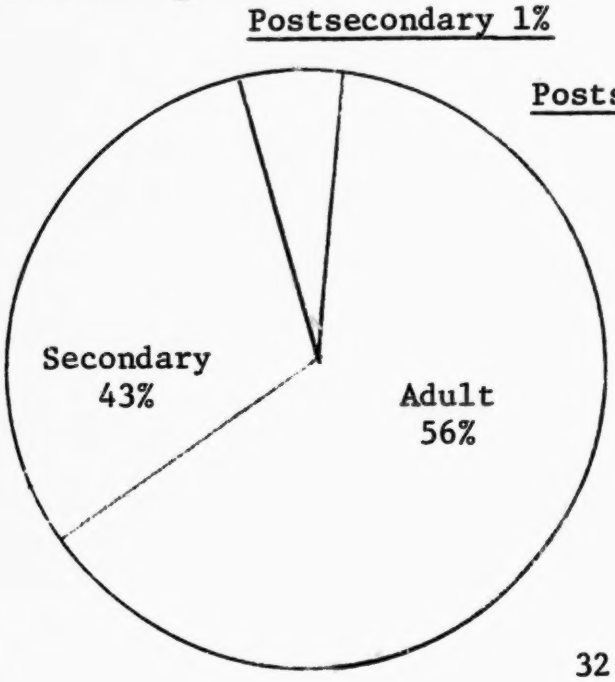
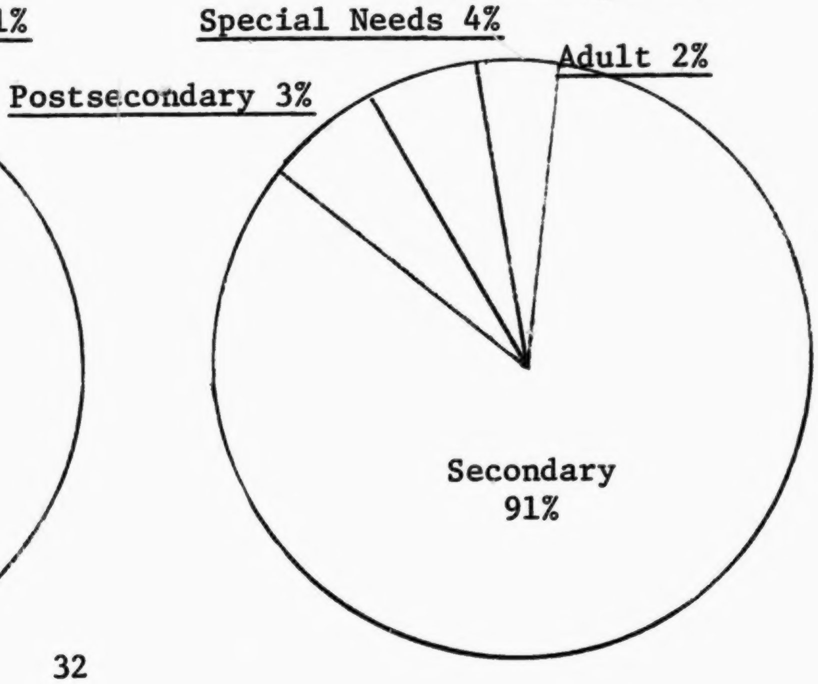


Figure 13

Percents of Total Expenditures
Distributive Education
by Instructional Level
1964 through 1968



The enrollments in distributive education increased from 4.8% of the total in 1964 to 6.3% in 1968, and the share of expenditures from 4.1% to 6.6% in the same period. The expenditures increased more than five times during the five years, while the enrollments almost tripled. Some of this disparity was probably caused by the fact that prior to the Vocational Education Act of 1963, Federal funds could only be used for part-time cooperative distributive education programs which are much less costly than full-time preparatory programs. A considerable portion of the sharp increase in expenditures occurred in 1968 in which year, the enrollments almost doubled. Table 15 provides the year by details from which further analyses can be made.

TABLE 17

ANNUAL DISTRIBUTIVE EDUCATION ENROLLMENTS, EXPENDITURES, AND INSTRUCTIONAL EXPENDITURES AS PORTION OF YEARLY TOTAL, 1964 THROUGH 1968

	Enrollments		Expenditures		Instructional Expenditures	
	Number	% of Annual Total	Amount	% of Annual Total	Amount	% of Annual Total
1964	5,324	4.8	$ 510,696	4.1	$ 412,549	3.9
1965	9,058	7.6	628,833	3.5	508,480	4.3
1966	7,145	3.6	882,954	3.8	701,552	4.7
1967	8,757	4.1	1,566,476	5.0	1,193,666	5.1
1968	14,764	6.3	2,668,353	6.6	2,286,156	7.2
Totals	45,048		$6,257,312		$5,102,403	

HEALTH OCCUPATIONS EDUCATION

Adult enrollments can be seen in Table 18 and Figure 14 to be the largest part of the health program. The health occupations program consists largely of the one year licensed practical nurse education enrollments. Secondary, special needs, and postsecondary enrollments together comprise less than 15% of the total enrollments.

Figure 15 discloses that expenditures for the adult level programs amounted to about 84% of all expenditures. This reflects the comparatively high cost of the one year training program for licensed practical nurses. A similar situation can be seen in the secondary level where almost 16% of the expenditures apparently are accounted for by the practical nurse education programs in area vocational technical schools.

TABLE 18

PERCENTS OF TOTAL HEALTH OCCUPATIONS EDUCATION ENROLLMENTS AND CORRESPONDING EXPENDITURES, BY INSTRUCTION LEVEL, 1964 THROUGH 1968

Instructional	Enrollments		Expenditures	
Levels	Number	% of Total	Amount	% of Total
Secondary	1,940	9.1	$ 711.452	15.7
Postsecondary	282	1.3	11,000	0.2
Adult	18,614	87.8	3,810,832	84.1
Special Needs	374	1.8	000	0.0
Totals	21,210	100.0	$4,533,284	100.0

Figure 14

Percents of Total Enrollments
Health Occupations Education
by Instructional Level
1964 through 1968

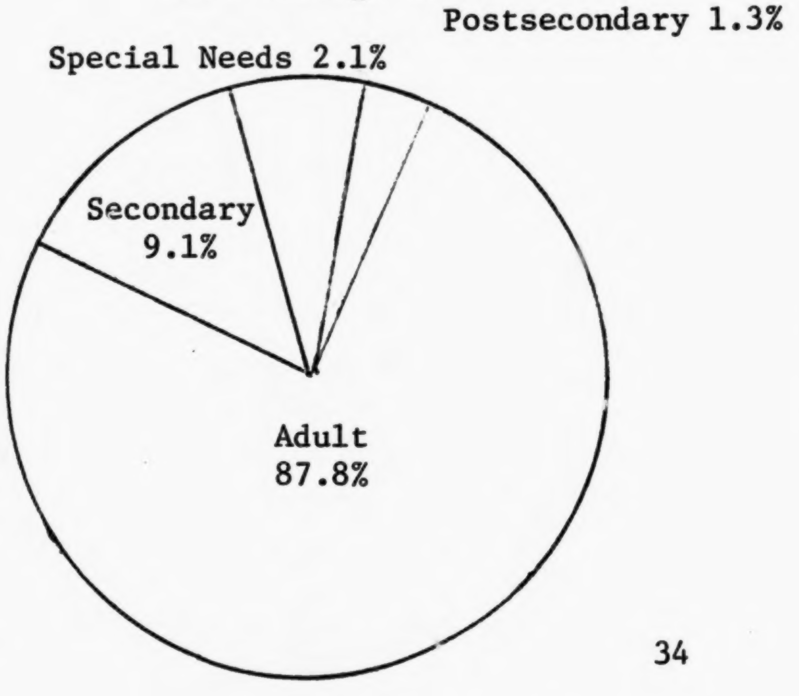
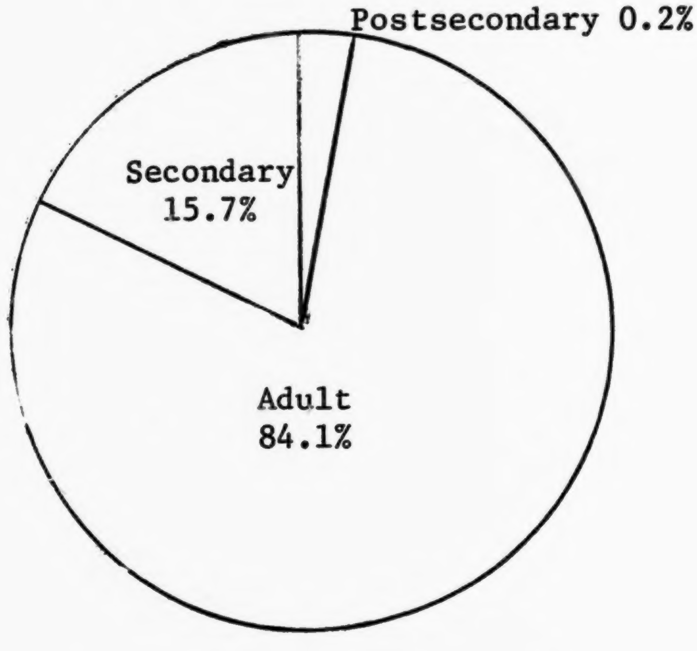


Figure 15

Percents of Total Expenditures
Health Occupations Education
by Instructional Level
1964 through 1968



Apparently there is some confusion in reporting both enrollments and expenditures in the health occupations programs because they can be recorded in secondary, postsecondary, or adult classifications according to local practices. The percentage of enrollments and expenditures remained rather stable over the 5 years. Actual total and instructional expenditures increased substantially. The whole program holds far less than an appropriate share of the total program in the light of the critical demands for trained health manpower, only 2.3% of all enrollments and 5.5% of all expenditures in 1968. Enrollments increased almost 32% but expenditures multiplied 5 times in the 5 year period. Table 19 reveals the year by year developments.

TABLE 19

ANNUAL HEALTH OCCUPATIONS EDUCATION ENROLLMENTS, EXPENDITURES, AND INSTRUCTIONAL EXPENDITURES AS PORTION OF YEARLY TOTAL, 1964 THROUGH 1968

	Enrollments		Expenditures		Instructional Expenditures	
	Number	% of Annual Total	Amount	% of Annual Total	Amount	% of Annual Total
1964	4,073	3.8	$ 592,906	4.8	$ 392,872	3.7
1965	3,772	3.2	554,322	3.2	412,656	3.6
1966	3,900	2.0	530,768	2.3	389,031	2.6
1967	4,085	1.9	1,749,619	5.6	1,586,710	6.7
1968	5,380	2.3	1,819,536	4.5	1,752,015	5.5
Totals	21,210		$5,247,151		$4,533,284	

OFFICE EDUCATION

Enrollment data summarized in Table 20 and Figure 16 shows office education to be primarily a secondary level program. Postsecondary and special needs enrollments comprise a very small part of the total program. Figure 17 shows that postsecondary and secondary level programs expenditures amounted to about 90% of the total. Paradoxically, postsecondary enrollments amounted to only 2.8% of the office education program total while corresponding expenditures were 47.5% of the total. Unless this disparity is the result of an accounting discrepancy it appears that the program's service at the postsecondary level is not commensurate with the investment.

TABLE 20

PERCENTS OF TOTAL OFFICE EDUCATION ENROLLMENTS AND CORRESPONDING EXPENDITURES, BY INSTRUCTIONAL LEVEL, 1964 THROUGH 1968

Instructional Levels	Enrollments*		Expenditures*	
	Number	% of Total	Amount	% of Total
Secondary	199,986	82.7	$2,079,139	42.0
Postsecondary	6,666	2.8	2,349,528	47.5
Adult	34,901	14.4	519,990	10.5
Special Needs	325	0.1	000	0.0
Totals	241,878	100.0	$4,948,657	100.0

*Enrollments for 1964 and 1965 and expenditures for 1964 were not included because an adequate reporting system was not in effect.

Figure 16

Percents of Total Enrollments,
Office Education
by Instructional Level,
1964 through 1968

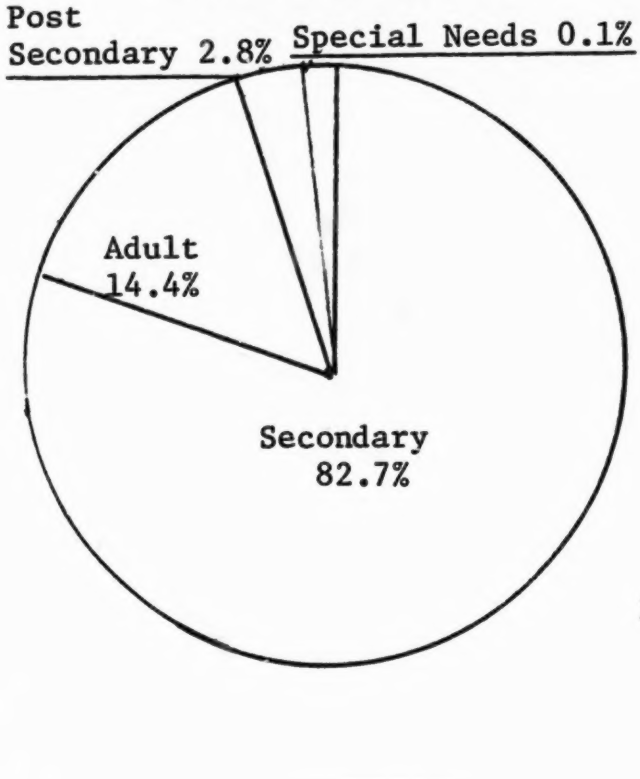
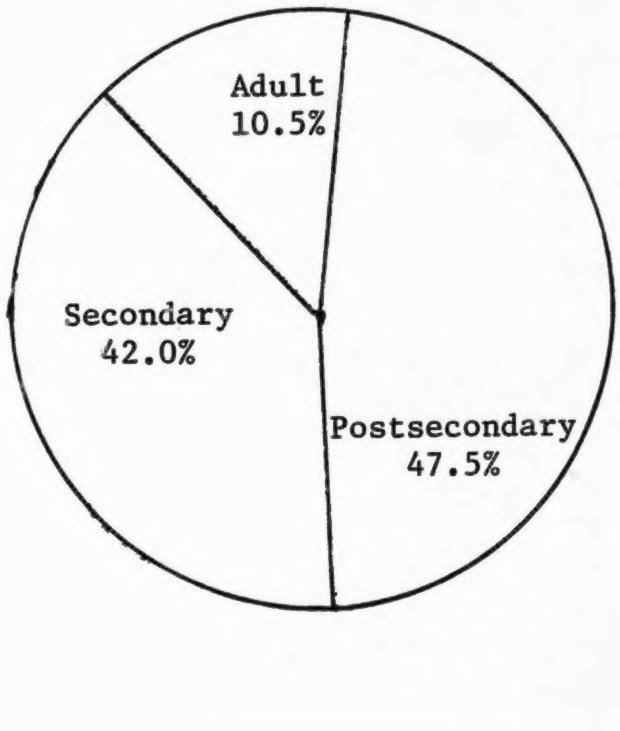


Figure 17

Percents of Total Expenditures,
Office Education
by Instructional Level,
1964 through 1968



The office education enrollments quickly rose to the highest of all the programs. Obviously, this came about as the result of many existing office education programs becoming eligible for Federal aid for the first time with the passage of the Vocational Education Act of 1963. No Federal funds were available in 1964. Although the enrollments were 38.7% of the 1968 total enrollments, the expenditures were 12.9%. A considerable amount of local funds were expended on this program because the larger comprehensive high schools have had office education programs for a long time. In addition, these programs are generally less costly than most other vocational programs. Table 21 shows continuous substantial increases in both enrollments and expenditures during the 5 year period.

TABLE 21

ANNUAL OFFICE EDUCATION ENROLLMENTS, EXPENDITURES, AND INSTRUCTIONAL EXPENDITURES AS PORTION OF YEARLY TOTAL, 1964 THROUGH 1968

	Enrollments		Expenditures		Instructional Expenditures	
	Number	% of Annual Total	Amount	% of Annual Total	Amount	% of Annual Total
1964	NA	NA	$ NA	NA	$ NA	NA
1965	NA	NA	2,546,289	14.3	NA	NA
1966	71,850	36.5	3,860,283	16.8	282,255	1.8
1967	79,490	37.0	3,386,348	11.0	1,543,772	6.5
1968	90,538	38.7	5,233,172	12.9	3,122,630	9.8
Totals	241,878		$15,026,092		$4,948,657	

TECHNICAL EDUCATION

Enrollments in technical education have been evenly divided between secondary and adult level programs. Postsecondary programs had only 5% of the total enrollment, which points the way toward substantial needed development of technical programs in the growing community colleges.

Expenditures have been largely devoted to secondary programs with relatively little, 12%, being expended for adult programs. Here again the expenditure proportions tend to suggest that the enrollments reported for adult level programs included a considerable number of short duration courses. Postsecondary expenditures, less than 1% of the total, are very low in view of the urgent demand for highly skilled technicians who have completed postsecondary programs.

TABLE 22

PERCENTS OF TOTAL TECHNICAL EDUCATION ENROLLMENTS AND CORRESPONDING EXPENTITURES, BY INSTRUCTIONAL LEVEL, 1964 THROUGH 1968

Instructional Levels	Enrollments		Expenditures	
	Number	% of Total	Amount	% of Total
Secondary	20,319	46.9	$6,732,470	87.2
Postsecondary	2,219	5.1	30,685	0.4
Adult	20,798	48.0	958,618	12.4
Special Needs	14	0.0	0	0.0
Totals	43,350	100.0	$7,721,773	100.0

Figure 18

Percents of Total Enrollments
Technical Education
by Instructional Level
1964 through 1968

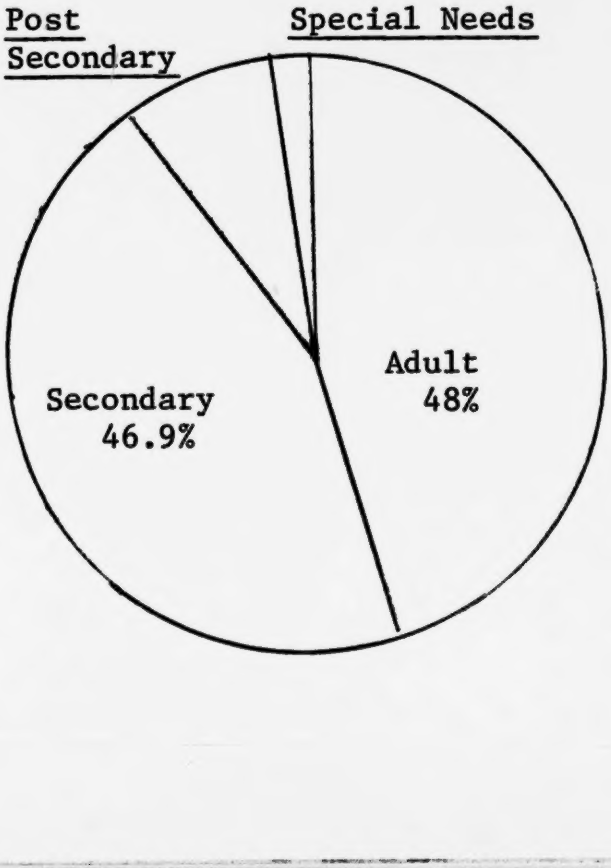
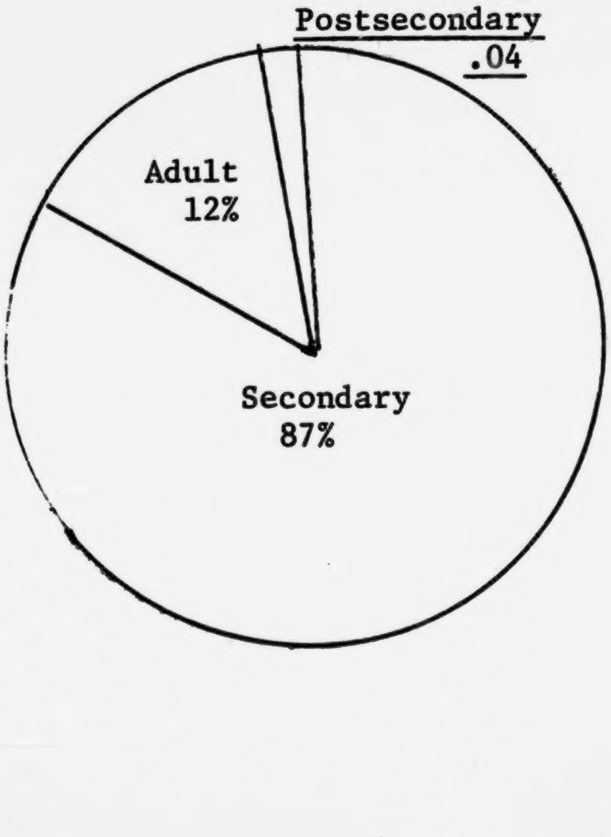


Figure 19

Percents of Total Expenditures
Technical Education
by Instructional Level
1964 through 1968



Despite the increasing demands for highly skilled technicians, the technical education program made up a lesser proportion of the total enrollments in 1968 than in 1964. However, actual enrollments almost doubled and total expenditures more than doubled in the 5 year period but the output of graduates was still rather meager. It is apparent that the principal deficiency in this program is at the postsecondary level. Table 23 shows the relatively static level of technical education as a portion of the total program.

TABLE 23

ANNUAL TECHNICAL EDUCATION ENROLLMENTS, EXPENDITURES, AND INSTRUCTIONAL EXPENDITURES AS PORTION OF YEARLY TOTAL, 1964 THROUGH 1968

	Enrollments		Expenditures		Instructional Expenditures	
	Number	% of Annual Total	Amount	% of Annual Total	Amount	% of Annual Total
1964	6,434	5.9	$ 1,471,001	11.9	$ 731,621	7.0
1965	7,082	6.1	2,445,206	13.7	1,102,507	9.4
1966	8,389	4.3	1,806,146	7.8	1,503,918	10.1
1967	9,566	4.5	2,437,880	7.8	1,823,522	7.7
1968	11,879	5.1	3,594,558	8.8	2,560,205	8.1
Totals	43,350		$11,754,791		$7,721,773	

TRADE AND INDUSTRIAL EDUCATION

Adult and secondary levels accounted for over 90% of the total enrollments in trade and industrial education as shown in Table 24 and Figure 20. Special needs enrollments amount to 7% of the total, the highest percentage reported for this purpose of all occupational programs.

Table 24 and Figure 21 reveal that expenditures (85%) were primarily for secondary level programs. The 11% adult level expenditures relative to the 48% enrollment at that level suggests that short duration courses comprised a considerable portion of the adult programs. Conspicuous by its absence is the expenditure figure for special needs programs. Whereas the highest enrollment percentage was reported in the trade and industrial category, no corresponding expenditures were reported once again pointing up a discrepancy in the financial accounting or reporting system.

TABLE 24

PERCENTS OF TOTAL TRADE AND INDUSTRIAL EDUCATION ENROLLMENTS AND CORRESPONDING EXPENDITURES, BY INSTRUCTIONAL LEVEL, 1964 THROUGH 1968

Instructional Levels	Enrollments		Expenditures	
	Number	% of Total	Amount	% of Total
Secondary	93,808	43.0	$37,364,478	85.1
Postsecondary	3,934	1.8	1,605,069	3.8
Adult	105,741	48.5	4,876,962	11.1
Special Needs	14,658	6.7	000	0.0
Totals	218,141	100.0	$43,926,509	100.0

Figure 20

Percents of Total Enrollments,
Trade and Industrial Education
by Instructional Level
1964 through 1968

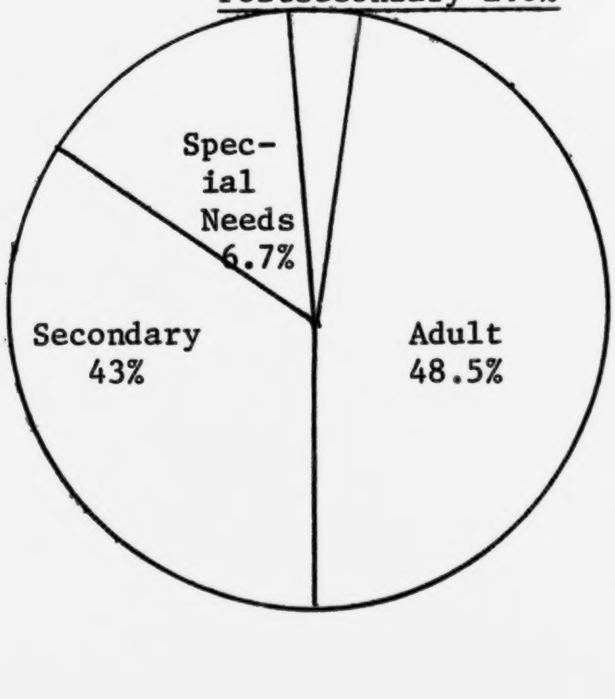
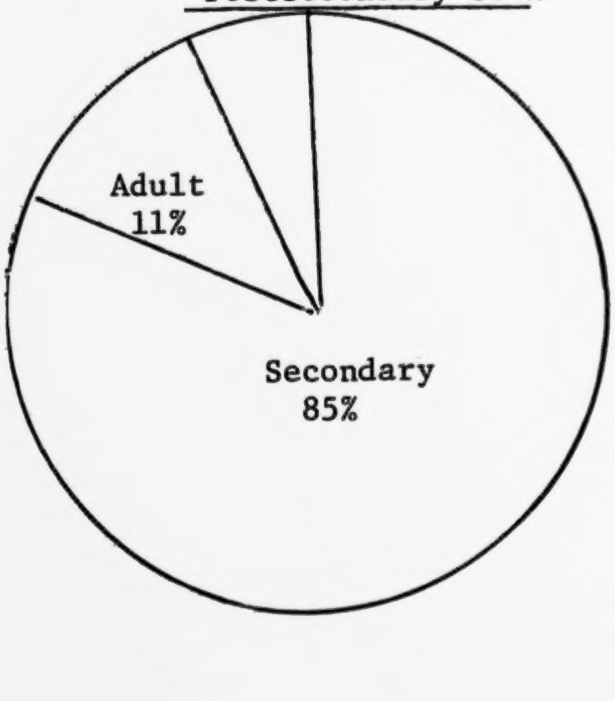


Figure 21

Percents of Total Expenditures,
Trade and Industrial Education
by Instructional Level
1964 through 1968



What appears to be a sharp decline in trade and industrial education enrollments in 1968 was caused by a change in statistical reporting. Approximately 15,000 enrollments in public service and retraining programs in 1968 were reported elsewhere instead of in the trade and industrial classification as had been done in 1967. Despite this change, it appears that trade and industrial enrollments did not rise commensurately with the advent of many new area vocational-technical schools in which most of the offerings are trade and technical. However, in all probability the full impact of the area school enrollments had not been experienced by June 30, 1968. In a number of cases, the net additional enrollments may have been reduced somewhat by reason of some comprehensive vocational education programs closing after the opening of the area schools. In general enrollments remained rather stable but expenditures more than tripled in the five year period, The expenditures as a percentage of the total expenditures each year also remained stable, approximating 48% of the total each year.

TABLE 25

ANNUAL TRADE AND INDUSTRIAL EDUCATION ENROLLMENTS EXPENDITURES, AND INSTRUCTIONAL EXPENDITURES AS PORTION OF YEARLY TOTAL, 1964 THROUGH 1968

	Enrollments		Expenditures		Instructional Expenditures	
	Number	% of Annual Total	Amount	% of Annual Total	Amount	% of Annual Total
1964	39,862	36.2	$ 5,324,721	43.2	$ 5,075,798	48.7
1965	39,625	33.4	6,695,986	37.8	5,523,968	47.6
1966	47,436	24.0	9,642,815	42.2	7,339,978	49.4
1967	48,267	22,5	14,070,072	45.4	11,611,995	49.2
1968	42,951	18.3	17,831,545	43.9	14,374,770	45.1
Totals	218,141		$53,565,139		$43,926,509	

CONSTRUCTION EXPENDITURES FOR AREA VOCATIONAL-TECHNICAL SCHOOLS

The sizable outlays for construction of area vocational-technical schools have been pointed out in Table 4 of this chapter. Because of the large sums involved and the important impact new facilities have for overall program expansion and improvement this special analysis was undertaken. Financing construction activities has been a cooperative effort of Federal, State, and local governments. Knowing the relative contributions and trends can be of value in planning the construction of facilities in the future.

To assist in making the analysis of construction expenditures more meaningful, the relationship of Federal, State and local contributions to totals is shown in Table 26.

TABLE 26

PERCENT OF TOTAL CONSTRUCTION EXPENDITURES BY SOURCE, 1965 THROUGH 1968

Federal, State and Local Relationships	Totals 1965-1968	Fiscal Years			
		65	66	67	68
Federal Share	16%	27%	28%	14%	13%
State Share	49%	45%	29%	61%	49%
Local Share	35%	28%	43%	25%	38%
State & Local Share	84%	72%	72%	86%	87%

It can be readily determined from Table 26 that State and local funds primarily have supported the construction effort. Federal expenditures, although amounting to more than $18 million, accounted for less than 16% of the four-year total. P.L. 88-210 Federal dollars and Appalachian Region provided substantial seed money in the great and far reaching construction effort witnessed in Pennsylvania during the four years, 1965 through 1968.

Table 26 provides information relevant to analysis of fluctuations and trends in construction expenditures by showing year to year changes as percent of prior year expenditures.

TABLE 27

YEAR TO YEAR CHANGES IN CONSTRUCTION EXPENDITURES EXPRESSED AS A PERCENT OF PRIOR YEAR AMOUNT

Source	% of Change Between Federal Fiscal Years		
	65-66	66-67	67-68
Federal, State, Local	-.22%	176.05%	31.7%
Federal and State	-20.45%	254.55%	7.9%
Federal	1.87%	29.20%	26.5%
State	-33.97%	465.19%	3.5%
Local	53.41%	68.13%	93.7%
State and Local	-1.00%	233.00%	32.1%

Table 27 indicates that although the expenditures at all levels of funding are still increasing, the increase is proportionately less in succeeding years, except at the local level. Here there is a continued increase, surpassing that of prior years. The data suggests that a plateau is being approached in construction expenditures. Courses to be offered in those facilities and the relationship of their output to the labor market demands is a key point point to be ascertained.

SUMMARY

More than $108 million were expended for construction of vocational education facilities in the four-year period from 1965 to 1968, of which almost half were State funds. After a slight decrease in 1966 total construction expenditures increased almost 2½ times in 1967. Considerable impetus to that acceleration was provided by the quadruple increase of State funding. The sharp increase in State funding of construction in 1967 materially contributed to reversing the Federal-State funding ratio shown in Table 27. In 1967 State expenditure exceeded Federal expenditures for the first time in the four-year period, 1965 through 1968. Detailed information on new and expanded facilities, extracted from the official "Achievement Report on Area Vocational-Technical School Developments, 1963 to June 30, 1968," will be found in Chapter II. The data provided summarizes the completed and proposed projects, locations of buildings, occupational courses offered, financial data, capacities, equipment, and other relevant information for assessment and planning purposes.

TABLE 28
SUMMARY OF OCCUPATIONAL EDUCATION ENROLLMENTS*
1964 THROUGH 1968

	OCCUPATIONAL EDUCATION PROGRAMS							
Fiscal Year	Agricultural Education	Distributive Education	Home Economics	Health	Office	Technical Education	Trade & Industrial	TOTAL
1964	13,458 (12.2)	5,324 (4.8)	40,753 (37.1)	4,073 (3.8)	------	6,434 (5.9)	39,862 (36.2)	109.904 (100.0)
1965	13,899 (11.7)	9,058 (7.6)	45,052 (38.0)	3,772 (3.2)	------	7,082 (6.1)	39,625 (33.4)	118,488 (100.0)
1966	13,524 (6.9)	7,145 (3.6)	44,757 (22.7)	3,900 (2.0)	71,850 (36.5)	8,389 (4.3)	47,436 (24.0)	197,001 (100.0)
1967	13,728 (6.4)	8,757 (4.1)	50,613 (23.5)	4,085 (1.9)	79,490 (37.0)	9,566 (4.5)	48,267 (22.5)	214,506 (100.0)
1968	13,626 (5.8)	14,764 (6.3)	54,952 (23.5)	5,380 (2.3)	90,538 (38.7)	11,879 (5.1)	42,951* (18.3)	234,090 (100.0)
TOTAL	68,235 (7.8)	45,048 (5.2)	236,127 (27.0)	21,210 (2.4)	241,878 (27.7)	43,350 (5.0)	218,141 (24.9)	873,989 (100.0)

*Excludes Retraining and Public Service Vocational Education Enrollments

TABLE 29
SUMMARY OF OCCUPATIONAL EDUCATION EXPENDITURES*
1964 THROUGH 1968

	OCCUPATIONAL EDUCATION PROGRAMS							
Fiscal Year	Agricultural Education	Distributive Education	Home Economics	Health	Office	Technical Education	Trade & Industrial	TOTAL
1964	2,172,269 (17.7)	510,696 (4.1)	2,253,160 (18.3)	592,906 (4.8)	-------	1,471,001 (11.9)	5,324,721 (43.2)	12,324,753 (100.0)
1965	2,340,257 (13.2)	628,833 (3.5)	2,529,995 (14.3)	554,322 (3.2)	2,546,289 (14.3)	2,445,206 (13.7)	6,695,986 (37.8)	17,740,888 (100.0)
1966	2,961,104 (13.0)	882,954 (3.8)	3,215,044 (14.1)	530,768 (2.3)	3,860,283 (16.8)	1,806,146 (7.8)	9,642,815 (42.2)	22,899,114 (100.0)
1967	3,778,870 (12.3)	1,566,476 (5.0)	3,963,765 (12.9)	1,749,619 (5.6)	3,386,348 (11.0)	2,437,880 (7.8)	14,070,072 (45.4)	30,953,030 (100.0)
1968	4,136,624 (10.2)	2,668,353 (6.6)	5,311,327 (13.1)	1,819,536 (4.5)	5,233,172 (12.9)	3,594,558 (8.8)	17,831,545 (43.9)	40,595,115 (100.0)
TOTAL	15,389,124 (12.4)	6,257,312 (5.0)	17,273,291 (13.8)	5,247,151 (4.2)	15,026,092 (12.1)	11,754,791 (9.4)	53,565,139 (43.1)	124,512,900 (100.0)

*Excludes construction and certain administrative and ancillary service expenditures

CONCLUSIONS AND RECOMMENDATIONS

Although the investment in vocational education in Pennsylvania has increased impressively over the past five years, it still is very modest when examined in the light of expenditures for secondary education as a whole and in view of the great unmet trained manpower needs in Pennsylvania.

Despite the sharp increases in State and Federal funds made available during the five year period, the local level is still bearing the greater burden (more than 50%) of the costs. The five year analysis indicates that real strides were made in the expansion of vocational training opportunities especially in 1967 and 1968 but there are numerous indications that the program in some aspects is still not closely attuned to meeting certain critical training needs.

Within the seven occupational categories, the program in terms of the educational levels, was found to be unbalanced in many instances. Very high and very low percentages for certain program levels suggest inadequacies or deficiencies in several categories. Balance in the program is related to the overall objective of vocational and technical education that aims at making training opportunities readily available to all persons of all ages in all communities of the State. Since the program levels are important in terms of meeting the needs of people of different ages in different circumstances and living conditions, to the extent that imbalance occurs, the above mentioned objective is not being achieved.

The Pennsylvania program is still predominantly a secondary level program as it has been historically. The secondary program expansion has been commendable but the postsecondary program development has not materialized significantly even with the advent of the new community colleges. Proportionately, the vocational adult education programs have been declining instead of increasing rapidly with many new day school facilities becoming available for evening part-time classes.

Enrollment data on adult programs has been cited as practically useless for management purposes because it is not comparable across occupational categories and even within single occupational categories. The reports now simply indicate the number of adults served. The statistical reporting could be greatly improved if it also included provision for reporting how long the enrollees were served. Student hours of training would be helpful in providing this information on adult programs.

Strangely, with all the new area vocational-technical schools going into operation, the trade and industrial education enrollments did not appear to be increasing proportionately. The lack of more substantial growth may reflect the declining rate of adult education enrollments. Still more serious are the deficiencies in program growth in the health and technician occupations. Only in 1968 did the distributive education program growth indicate an emphasis on the huge fast growing labor market in distribution, that is, sales, sales service, management and marketing. The health industry, now among the largest in the nation, has critical trained manpower needs practically untouched in the Pennsylvania program. The demand for highly skilled technicians promises to be the fastest growing segment of the labor force in the next five years but, here again, the Pennsylvania program is not making a substantial contribution either in number or in kind.

If the preceding occupational programs are somewhat neglected, a deficiency even more glaring is evident in the meager program investment and number of people served who are socioeconomic disadvantaged or handicapped in other ways. Social turmoil stemming from economic disparity within the population of the State and nation underscores the desirability of providing occupational education programs oriented to the special socioeconomic needs of individuals and minority groups. This analysis has shown that in almost every occupational category a concerted effort should be made to identify, recruit and train individuals or groups within the State who otherwise might never experience an opportunity to upgrade their competitive position in today's increasingly technically oriented labor market.

There is little doubt that a record similar to that of Pennsylvania in special needs programs in many other states brought about the 15% earmarking of state grant funds and another special authorization for these programs in the Vocational Education Amendments of 1968. The 90th Congress obviously expected that the states should have made a much more substantial contribution to the vocational training and placement of both rural and urban disadvantaged youth and adults than they did in the five years under the Vocational Education Act of 1963.

The summary of occupational enrollments in Table 28 shows that the grand total of enrollments over the five year period increased from 109,904 in 1964 to 234,900 in 1968. With few exceptions the enrollments in each of the occupational areas increased each year over the five year period. In general, the corresponding expenditures rose much more sharply. Of course, the cost of operating the programs increased each year along with the rise in costs generally. Also it is assumed that some of the additional expenditures were devoted to new and replacement equipment with a view toward updating the curriculums in many cases.

Recommendations. The staff for the health occupations and the technical education program should be increased and made independent of the trade and industrial education unit so that more emphasis and concentrated promotional efforts can be devoted to program expansion in those two areas. In fact, the staff in all of the occupational areas should be promoting technical education programs appropriate to their respective segments of the labor force.

Special staff should be transferred or employed to concentrate on the promotion and development of programs to meet the special needs of the socioeconomic disadvantaged. Here again, all other staff members should be continuously alert to the promotion of special needs programs appropriate to their respective occupational areas.

Other restructuring of the Bureau of Vocational, Technical and Continuing Education should be undertaken in accordance with the recommendations in Chapter VII so that the important functions of planning, evaluation, services and supervision can contribute to the removal of present program deficiencies.

More responsibility and authority should be placed on the Division of Continuing Education to concentrate on the promotion and development of vocational adult education programs. Additional staff either transferred or newly employed should be placed in the central office and in the field to carry out these responsibilities.

Other recommendations related to the analyses made in this chapter, such as statistical and financial reporting and organization and administration will appear in later chapters.

SECTION I--FIVE YEAR ANALYSIS, PROGRAM TRENDS AND CURRENT STATUS OF VOCATIONAL, TECHNICAL AND CONTINUING EDUCATION

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SECTION I--FIVE YEAR ANALYSIS, PROGRAM TRENDS AND CURRENT STATUS OF VOCATIONAL, TECHNICAL AND CONTINUING EDUCATION

CHAPTER II

CURRENT STATUS OF PROGRAM

Historically, vocational education programs have been characterized by seven broad occupational classifications in the labor force namely, agriculture, business or office, distribution, health, home economics, technical, and trades and industry. These occupational areas were adjudged to cover all types of occupations in the work force of the nation other than the professions. In order to assist in the promotion and implementation of vocational and technical education programs, the United States Congress for many years authorized and appropriated funds in behalf of these occupational education programs. In recent years, there has been frequent criticism of this historical practice and perhaps as a result, the new vocational education act, P.L. 90-576 no longer authorizes funds in this manner. Despite the changes in funding authorizations under P.L. 90-576 the fact remains that because of the long historical record of occupational program development, an account of the current status of the program can be done best by describing the total program in terms of the seven occupational education groupings.

AGRICULTURE

Since World War I, a technological revolution has been underway in agriculture in the United States. Farm technology - the application of science and education to agricultural production - has brought about tremendous changes, particularly since World War II. By conducting research which the individual farmer could not do on his own, the Agricultural Experiment Stations, a part of the College of Agriculture of the land-grant university, Pennsylvania State University, through its cooperative agriculture extension service, and the public high school vocational agriculture education program have provided farmers with the know-how which has resulted in the food production miracle in the United States. There is little reason to suppose that the end of the technological revolution is in sight. While the number of farms, the number of acres in farmland and the number of farm workers are expected to decline, farm size, total production and production per farm worker will increase.

Every citizen in the nation profits from this technological revolution in agriculture by having bountiful supplies of healthful foods available at low cost. There may be a degree of complacency in the United States, however, in that technological improvements in food production are expected to continue with or without support from education and research which brought it about from the beginning.

The ability of a farmer in the United States today to produce food enough for himself and 38 others is the result of many factors.

Primarily, mechanization, research and education have been the dominant factors which have brought about this modern-day miracle. The public vocational agriculture education program and the land-grant universities have played a key role in providing farmers with the know-how which has resulted in the food production miracle in the United States.

In Pennsylvania, a varied choice of educational opportunities exists for youth and adults interested in preparing themselves for employment in farming or in off-farm agricultural occupations. Through public comprehensive high schools, area vocational-technical schools and community colleges, youth can obtain instruction for jobs in agricultural production or in off-the-farm agricultural occupations. Adults already employed in farming or in off-farm agricultural jobs may increase their knowledge through young and adult farmer instruction and other post-high school agricultural training programs offered by the schools. The College of Agriculture at The Pennsylvania State University makes conferences, field days, short courses, and two and four-year educational programs available to those who wish to further their education in agriculture.

Vocational agriculture education programs are offered in 200 comprehensive high schools, 19 area vocational-technical schools and two community colleges. The Williamsport Community College operates a two-year park management course with 36 enrolled. The all-day enrollment in the high schools is 10,000, and 1,000 in the AVTS. Over 9,200 of these students belong to 215 Chapters of Future Farmers of America. All students in vocational and technical agricultural programs conduct "supervised occupational experience" programs. There are 4,400 persons enrolled in 97 adult education programs. Leadership training for this group is provided through the Pennsylvania Young Farmers' Association. The high schools, area vocational-technical schools, and community colleges employ a combined total of 300 agricultural teachers who hold B.S. degrees and are fully certificated.

The number of graduates, annually, from the high school programs approximates 2000 persons. Of these graduates approximately 15% entered the armed forces and 25% continued education beyond high school, another 10% entered non-farm employment and 50% (1000 persons) remained on the farm in production and preliminary managerial capacities. The 1000 agriculture education graduates of the State's high schools are the major source of annual supply of farm proprietors, managers, foremen and laborers for Pennsylvania's 82,000 farms.

The enactment of the Vocational Education Act of 1963, P.L. 88-210 provided for the inclusion of agriculture education for off-farm agricultural occupations. The eight major instructional areas in the agricultural education curriculum today are: agricultural production, agricultural supplies, agricultural mechanics, agricultural products, ornamental horticulture, agricultural resources, forestry, technical and pre-professional.

The projected 1975 annual need of 2978 farmers and farm managers for Pennsylvania does not take into account the significant changes now taking place in the agriculture education curriculum previously mentioned. As the curricular offerings for the broad range of agriculture pursuits expands and the enrollment of students increases, it will be most difficult to continue to maintain even the number of 1000 graduates who will enter farm proprietorship and management. It would therefore appear necessary to expand the farm management education programs at every educational level and to consider the size and scope of new agriculture courses relative to off-the-farm agricultural occupations as additional manpower is not available for farm managerial pursuits.

The Tarver Study[1] made three farm manpower projections based upon three assumptions of farm labor stability factors. His conclusion under all these variables "revealed an expected supply of farm youth far in excess of farming manpower requirements during 1960-70. Thus, it will be necessary for 39 percent or more of the young farm boys reaching maturity during the present decade to seek employment in agriculturally-related work or non-farm work."

Many relatively new off-farm agricultural occupations have emerged in recent years and other occupations have become more important in terms of services rendered and number of persons employed. The areas of recreation and conservation involving the region's natural resources are enjoying growing attention and providing employment for increasing numbers of persons.

Some of the occupations require the worker to have considerable knowledge and competence in agriculture. Persons employed in jobs in landscaping, ornamental nursery, turfgrass, floriculture, forestry, forest products, harvesting, conservation of natural resources including wildlife, agricultural mechanics, agricultural supplies and services, agricultural products processing and marketing need agricultural skills. Occupational education opportunities for these emerging jobs are now being provided to a limited extent through the secondary schools of the State. Postsecondary agricultural education is needed beyond that which high schools can provide in many of these occupations. Expansion in the number of these programs must occur if the jobs are to be filled with qualified workers.

The Department of Agricultural Education at the Pennsylvania State University in cooperation with the Agricultural Education Section, Bureau of Vocational, Technical and Continuing Education, conducted a survey[2] to determine the employment opportunities and the technical education needs for off-farm agricultural occupations in Pennsylvania. The study included only those occupations in which the worker needed some knowledge and competence in the agricultural areas of plant and soil science, animal science, agricultural mechanics, and/or agricultural business management. The survey revealed that about three persons employed in off-the-farm agricultural occupations are needed to back up each farmer in today's agriculture. The data obtained in this comprehensive study in 29 counties of the commonwealth were reported as shown in Table 30.

---

[1] James D. Tarver, Farm Manpower Requirements in Pennsylvania, 1969-70, Bureau of Vocational, Technical, and Continuing Education.

[2] Norman K. Hoover, David R. McClay, and Glenn Z. Stevens, Off-Farm Agricultural Occupations In Pennsylvania: Employment Opportunities and Technical Education Needs, Division of Agricultural Education, Bureau of Technical and Continuing Education, Department of Public Instruction, Harrisburg, Pa. Teacher Education Research Series, Vol. 7, No. 1, 1966.

TABLE 30

AGRICULTURE ENTERPRISES AND PERSONS EMPLOYED IN OFF-FARM AGRICULTURAL OCCUPATIONS

Occupational Family (Enterprise)	No. of Business and Services	Number Persons Employed	Employees needing Ag. Competencies Number	Percent
Agriculture Supplies and Equipment	1,014	13,235	7,111	20
Agriculture Machinery Sales and Services	386	5,132	2,626	8
Livestock, Dairy, Poultry, Products	842	18,523	9,194	26
Fruits, Vegetables, Crops, Forestry	391	10,493	2,901	8
Ornamental Horticulture	1,403	21,391	9,307	27
Agriculture Resources	121	1,659	1,247	4
Agriculture Services	258	5,904	2,464	7
Totals	4,415	76,337	34,850	100%

The off-the-farm agricultural occupations data thus obtained was projected to the remainder of the counties. Total figures for the projection tables for all 67 counties was reported as follows:

TABLE 31

PROJECTION OF OFF-FARM AGRICULTURAL OCCUPATIONS EMPLOYEES TO THE 67 COUNTIES IN PENNSYLVANIA

	Employees Needing Agricultural Competencies			
	Current Full-Time	Current Part-Time	To be Hired By 1971 Full-Time	To be Hired By 1971 Part-Time
Totals	50,104	13,968	16,213	8,526

Inasmuch as the labor force projection data in Chapter V, does not reveal this kind of occupational information, it is suggested that the agriculture education leadership in the State should continue to study and analyze off-farm agriculture employment with a view toward revising present curricula and developing new courses. The projections revealed in the Pennsylvania Study should be examined and used thoughtfully in program planning in the light of additional current local information and data.

BUSINESS AND OFFICE

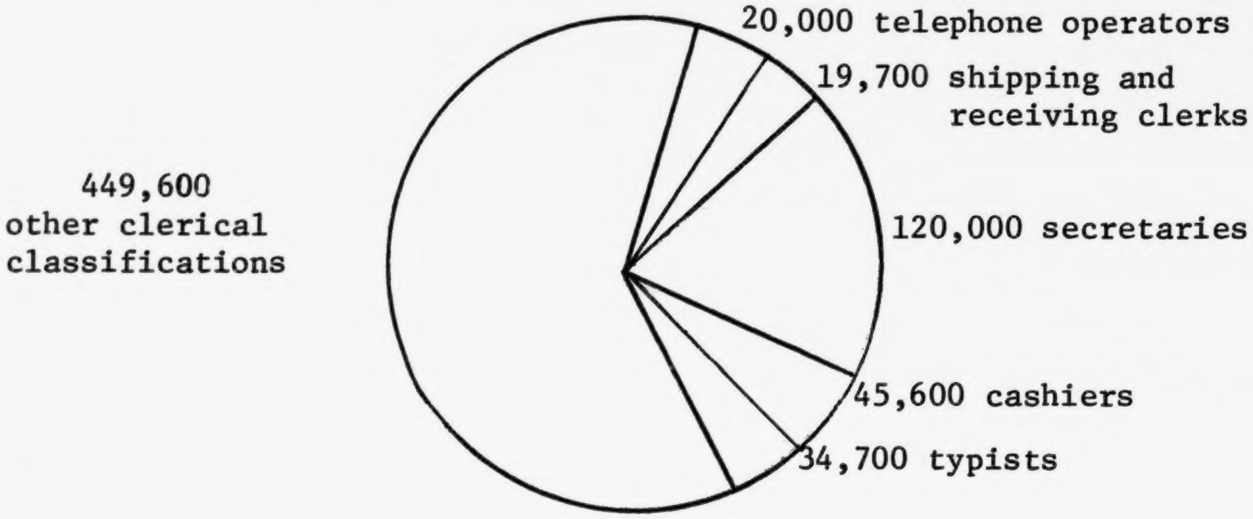
The major objective of business education is to provide specialized instruction for those students who plan to become wage earners in business and office occupations. The 625 public high schools of Pennsylvania as of June 1968 reported the following twelfth grade enrollments concentrated in four business education curriculum sequences: stenographic and secretarial, 5,925; bookkeeping and accounting, 3,755; typing and clerical, 10,512; and automated data processing, 837.

The total number of these, 21,029, would be the business education labor force supply from the public secondary schools for the school year 1967-68. Over 6,000 of these students are members of 140 Chapters of Future Business Leaders of America (FBLA). On the postsecondary level, there are business education programs in 12 community colleges. Approximately 22,000 adults are enrolled in 450 part-time classes. The Vocational Education Act of 1963 which provided funds for business education stimulated the acquisition of modern business education equipment, the expansion of instruction in automated data processing and curriculum content improvement related to changing job requirements.

The business and office occupational grouping of employed workers corresponds to the U.S. Census major category of "clerical and kindred workers." The Pennsylvania labor force in the major category numbered 591,172 persons in 1960, 215,759 male and 375,413 female. A large increase is projected by 1975, approximately 275,503 male and 494,597 female workers, a total of 770,100 persons. Percentage-wise this projection would account for 9.7% of the males employed and 31% of the females employed in the total labor force. At an estimated average annual wage of $4,200 each the 770,100 persons employed in this category in Pennsylvania in 1975 would have total earnings of $3,234,420,000.

The total number of persons employed in this category projected to 1975 for Pennsylvania may be identified in classification as shown in Figure 22.

FIGURE 22



The high number of "other clerical classification" includes: receptionists, stock clerks, postal clerks, office machine operators, financial clerks, messengers, payroll and time clerks, collectors, adjusters, ticket clerks, etc. A distinction may be applied to those occupations classified in the chart and those grouped under "other clerical" primarily on the basis of manipulative skills, technical knowledge and personal attributes. Mathematical skills are common to all but manipulative skills are highest for those who operate office machines and equipment. Those persons in job classifications ranking high in contacts with the public involving verbal communications and recording of accurate information should have language facility and extrovert personalities.

If the annual needs of the clerical and kindred labor force category were limited to the graduates of the public high schools a manpower emergency would indeed exist. Projections in this study indicate a requirement of an annual supply of 69,000 persons instead of the 21,000 persons produced in 1968 by the public school business education programs of the Commonwealth.

The complexities of matching youth and clerical jobs through secondary school vocational business education programs must be dealt with at the local level. The needs of employers should be known by the educators and school curriculums planned to relate the supply with the demand. The educator should be prepared to discuss the breadth of scope of present and comtemplated programs and the administration techniques which may be needed to provide some flexibility of supply.

The regular school business education programs would add flexibility by altering facilities and content but efficient facility techniques should also be considered including:

(a) short intensive adult evening extension classes,

(b) part-time cooperative work experience programs,

(c) conference training of office supervisors to improve new employee orientation and on-the-job training after employment.

Business education is not limited only to the major census category of clerical and kindred workers. Among other major job classifications are many jobs in which business principles and practices are at least concomitant disciplines. Such jobs in large numbers are identified as professional-technical, farmers, managers, officials, proprietors, supervisors, and teachers. Some of these jobs will require a college education, others merely short courses or leadership conferences conducted at the secondary or college levels. Courses for employed adults should be carefully planned and taught by qualified and recognized specialists in the particular subject speciality.

There is a wealth of curriculum materials available and in process of development to which school administrators should turn for further information in the planning of new programs. This report encourages the review of such curriculum materials and the counsel of agriculture specialists in program planning.

DISTRIBUTIVE EDUCATION

Distributive education is that service in vocational education which prepares persons to enter or advance in occupational classifications having primary functions of marketing or merchandising goods and services. The vocational distributive education program is aimed at merchandising careers in great variety and usually includes a period of part-time cooperative employment during which sales experience and in-school instruction can be coordinated in the interest of successful satisfying employment and career promotion.

The George-Deen Act of 1936 established the principle of financial support to vocational education for distributive occupations. The establishment and operation of educational programs has been slow. There was evidence that neither employers nor school administrators were knowledgeable or receptive to distributive education programs. Distributive education teachers-coordinators and interested students are key factors in producing successful programs essential to expansion. In recognition of the need for program promotion, a study of national significance was approved and funded by the Pennsylvania State Board for Vocational Education to Temple University and a report[3] published in 1960. The report is recommended to persons interested in program development.

Distributive education now encompasses 97 school districts and over 6,000 students at the high school level. An equal number of adults are being trained annually in preparatory and supplementary instruction in marketing and distribution. Whereas, distributive education was only a 12th year program in 1960, it is now operating almost entirely in two year high school programs but with experimental programs in the ninth and tenth year. Marketing and distribution are offered in practically every community college in the Commonwealth as part of the regular course offerings. Students are now being prepared in at least 33 general classifications of marketing and distribution. The annual new supply of trained workers in distribution is approximately 2,200.

Within the U.S. Census the distinctive classification for distribution is "Sales Workers". The labor force projection to 1975 for Pennsylvania in this category is 353,300 persons, 214,604 males and 138,696 females. This will be 7.6% of the total male labor force and 8.7% of the total female force. Annual growth exceeds 1% per year. The U.S. Census, Table 121 further separates sales workers into the classifications to which the percentage distribution is applied in Figure 23.

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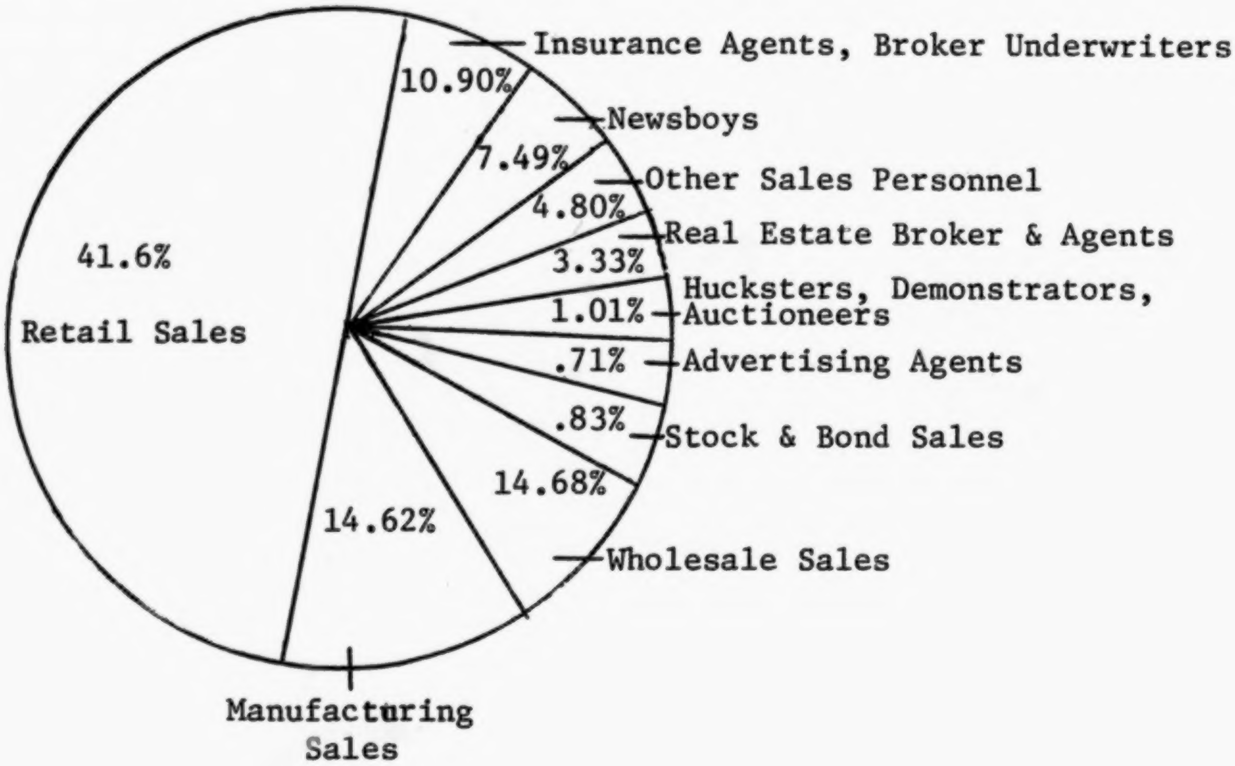
[3] Effective Distributive Education Practices, 1960. The Educational Services Bureau, Temple University, Philadelphia, Pennsylvania.

FIGURE 23



In addition to the above job classifications, vocational distributive education includes training of service workers associated with food service, especially waiters (6,000) and waitresses (52,000). These figures will not be included in further calculations, primarily because they appear in another major category of the U.S. Census. On the basis of labor force projections to 1975 for sales workers which involves an annual withdrawal rate of 3.1% and an annual growth of 1.2%, the annual demand for sales workers may be 15,200 persons.

The extension education program for approximately 6,000 employed adults includes conferences conducted by distributive education State field staff members headquartered at the teacher education institutions of Temple University and University of Pittsburgh. These conferences are organized for managerial and supervisory personnel on selected topics such as: increasing efficiency, training of employees, cost analysis, public relations, store equipment, etc. The basic purpose of distributive education managerial courses is to promote the success of small business ventures as the outlet for distribution of products. Failure of the small businessman creates unemployment, wastes capital, defeats initiative and thwarts production.

The Federal office of the Small Business Administration gave the following report in release GPO 876-081:

> 95 percent of American business is small business
>
> 40 percent of total business volume is done by small firms
>
> 40 percent of the working force is employed in small concerns
>
> 92 percent of small business failures are management failures

The Wall Street Journal, June 11, 1968, reported 201,000 bankruptcy cases for the fiscal year ending June 30, 1968. It is appropriate to suggest that prospective entrepreneurs should have the benefit of small business management education before becoming established in a capital venture.

Distributive education does not propose to render the extensive service suggested to match the training of youth to all labor market needs. It is recognized that for many sales positions, limited on-the-job instruction of the individual having adequate general education will serve for the limited time many persons remain in sales employment. The distributive education programs in most high schools include courses in "selling" which give the fundamentals of store counter clerking.

There is considerable curriculum material available and in process of publication both by vocational educators and participating employers which should be helpful to other employers and educators in the planning of new programs. The review of curriculum materials and counsel of distributive education specialists in the Bureau of Vocational, Technical and Continuing Education is encouraged.

HEALTH OCCUPATIONS

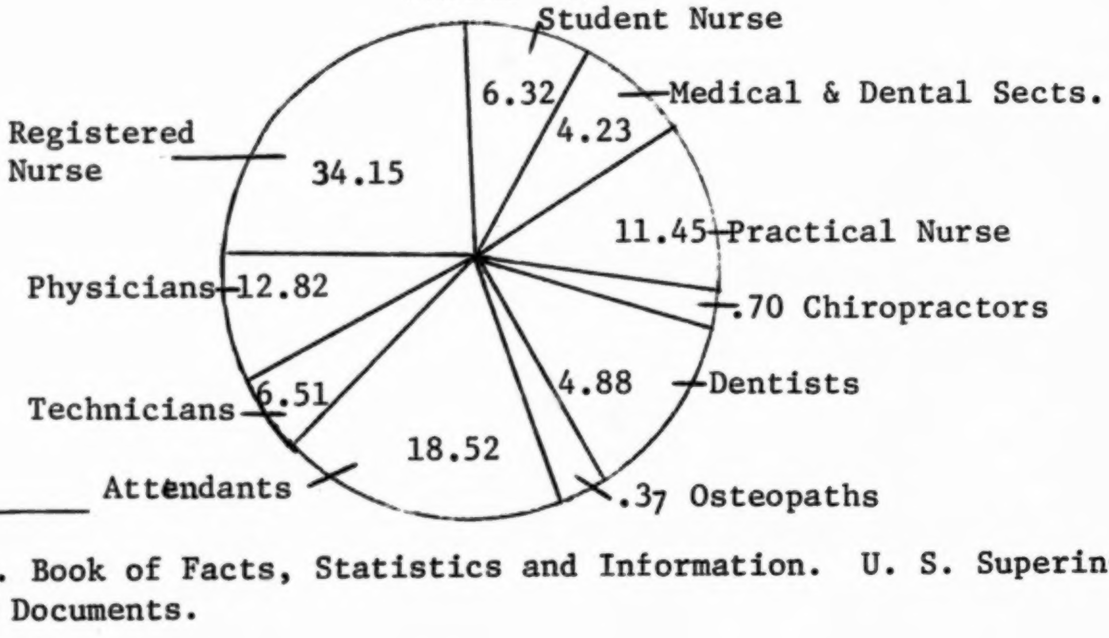
Health occupations education programs in the public schools are designed to prepare persons to enter health occupations which render supportive services to the health professions such as nursing, medical and dental practices. The health occupations education service of the Bureau of Vocational, Technical and Continuing Education as one of the several health education training programs in the commonwealth, enrolled 5,380 persons in 1967-1968. Of this number more than 1,200 completed training and were placed in employment. This program originally was chiefly concerned with practical nurse education but has now been extended into a variety of health occupations including medical and dental secretaries, laboratory technicians, nursing aids, and other specialized health fields.

Medical care expense in 1965 accounted for 6.5%[4] of personal consumption income for the United States. Applying this percentage to Pennsylvania's personal income of $31.8 billions in 1965 the gross citizen medical expenses would have been $2 billion. The total expenditure should also include the State and Federal funds for 1965 which were budgeted at $456 million in the State Department of Public Welfare. The cost ratio for medical care based on the year 1958 as 100 had increased to 122.3 in 1965 and was rapidly accelerating.

In 1965, Pennsylvania had 324 hospitals with 119,851 beds and 668 nursing homes with 9,062 beds. The number of persons employed, according to the 1960 U. S. Census in medical and other health services was 49,374 male and 114,896 female, a total of 164,270. This includes the total spectrum of job classifications associated with medical care goods and services not limited to direct patient contact.

The census enumerates the following selected data in regard to health workers having direct patient contacts as shown in Figure 24 .

FIGURE 24



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[4] U. S. Book of Facts, Statistics and Information. U. S. Superintendent of Documents.

The enumeration of job classifications and density for those employed in direct patient contacts is far from the total occupational scope of persons employed in the health services field. It has been estimated that whereas in 1960 only 2.9% of the total civilian labor force was employed in health occupations, the proportion will be 4.3% by 1975. Based on the projected 1975 total wage and salary employment in the State by 1975 of 4,456,000 persons at the projected rate of 4.3% there will be a health labor force of 191,000.

Growth in the health occupations training program will continue to be dependent upon local initiative in establishing facilities, gaining the cooperation of health agencies and attracting students. The extent of educational services in the health field is limited in scope although large in numbers primarily because the majority of the occupations are semi-professional and professional. The postsecondary school program therefore should be greatly expanded to meet the rapidly increasing demands in emerging health occupations which require two or more years of education and training beyond high school graduation.

In connection with post high school health education, it would appear desirable to consider the establishment of multidiscipline educational programs in the interest of centralizing equipment, personnel and staff. Only by maximum capacity operation of facilities can operational efficiency be effected. The team teaching technique can only be applied when the size of a multidiscipline institution can furnish an adequate staff.

The secondary school program can continue to serve the large number of persons needed below the semi-professional level where the annual turnover and growth factors are relatively high. The labor market turnover may not be apparent in the manpower projections in Chapter V of this study because it varies considerably at the local level. The turnover is exceptionally high in the lesser skilled occupations primarily in mental health institutions. A low wage factor coupled with an abnormal mental patient environment and young employees is not conductive to permanent employment. An annual turnover exceeding 100% is not unusual in such situations. In addition, the great majority of employees are female who enter and leave the labor market much more frequently than men.

A considerable burden of improving health education and employee efficiency and turnover rests largely with institutional management. A study of factors adversely influencing the effective use of health manpower would contribute greatly to the further planning of educational facilities and their efficient operation.

The Hospital Educational and Research Foundation of Pennsylvania (HERF), a multi-purpose foundation, is working in conjunction with the hospitals of Pennsylvania in the area of health manpower. HERF is to become a center for data regarding the status of health manpower and health manpower facilities throughout the Commonwealth. A Health Manpower Intelligence Facility (HMIF) established with HERF under a contract with the Bureau of Health Manpower, U. S. Public Health Service is concerned presently with establishing a data bank of supply and demand for health manpower in Pennsylvania. The Department of Public Instruction should establish and maintain close working relationships with HERF in behalf of more effective program planning.

HOME ECONOMICS AND SCHOOL FOOD SERVICES

Home Economics Education and School Food Service is responsible for administering and coordinating four main programs in Pennsylvania:

(1) Vocational secondary and adult home economics programs,

(2) General homemaking from elementary level through the adult level,

(3) School food service programs, and

(4) Home economics teacher education in fifteen institutions approved to prepare teachers of home economics education.

The following instructional programs were offered:

Comprehensive Home Economics
Child Development
Clothing & Textile
Consumer Education
Family Health
Family Relations
Food and Nutrition
Home Management

Housing, Home Furnishings
Care, Guidance of Children
Clothing Mgt. Prod. & Services
Food Mgt. Prod. & Services
Home Furn. Equip. & Services
Inst., Home Mgt. & Supporting Serv.
Other Occupational Preparation

HOME ECONOMICS EDUCATION

The vocational secondary home economics program continues a steady growth pattern. In 1967-68 the program involved 628 teachers in 313 programs with an enrollment of 28,679 (1,132 males.) The vocational adult programs for Pennsylvania involved 21,744 enrollees with 608 teachers in 134 school districts. The Future Homemakers of America organization functions as an integral part of the home economics education program providing a framework in which youth-planned and youth directed activities can be extended beyond the classroom to enrich learning. As of January 10, 1969 there were 313 affiliated chapters with a membership of 10,534. The general homemaking education program extends from elementary grades through the adult level and involves approximately 300,000 students in about 600 school districts with approximately 2,000 teachers.

SCHOOL FOOD SERVICE

The School Food Service Program has expanded into seven specific categories. They are:

(1) National School Lunch - 830,961 meals served daily.

(2) Section 11 Special Assistance - For schools located in an economically depressed area who serve more than 10% of the meals free or at reduced cost.

(3) Special Milk Program - Over a million 1/2 pints served daily.

(4) School Breakfast - Approximately 3,500 meals served daily.

(5) Non-Food Assistance - Money allocated to provide equipment for food service in economically depressed areas.

(6) Section 13 Vanik Bill - Food service program for children in day care in non-school situation.

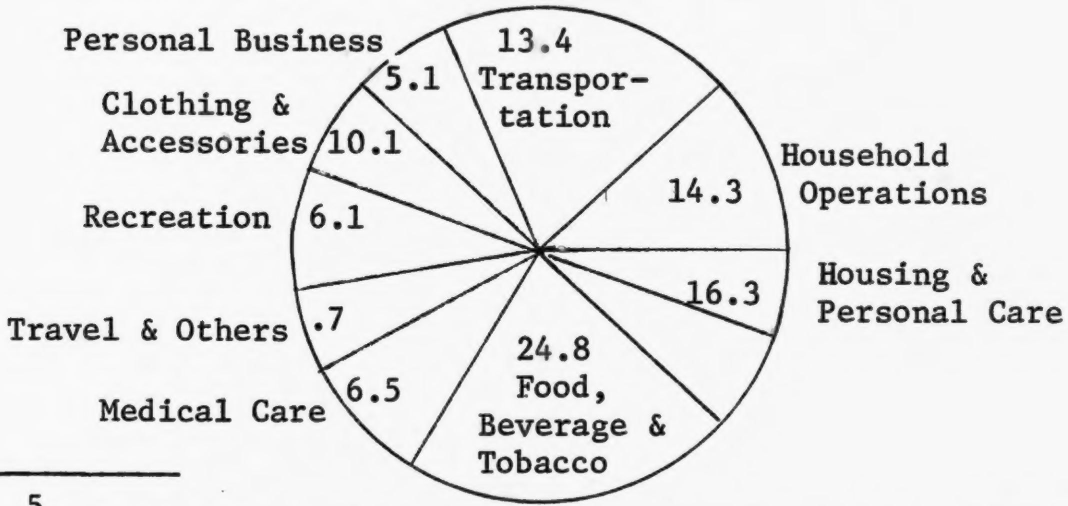
(7) Free and Reduced Price Meals to Children - There funds are all dispersed to local school districts in the form of reimbursement.

Total Funds Allocated by Federal Government - $12,234,120.00

The program involved the administrative review of over 800 cafeterial kitchens by members of the supervisory staff. It also involved an extensive in-service education program for cafeteria workers. Participating colleges and universities conducted institutes for non-professional food service employees. During the time in which the food service program has operated in the Bureau of Vocational, Technical and Continuing Education, four baccalaureate degree programs have been initiated in colleges and universities in school food service administration. This is all a part of an organized food service training program from the worker to the professional level.

The family life of Pennsylvania is centered in 3,400,000[5] households as of 1965. Of this number 2,502,000 were husband and wife households. There were single parents in 938,000 households by reason of death or separation in marriage partnership. These households sheltered, fed and clothed approximately 5,000,000 children under 20 years of age. Gross household consumable expenditures for the year were in excess of $20 billion. These expenditures are identified percentage wise in Figure 25 :

FIGURE 25



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[5] U.S. Book of Facts, Statistics and Information - 1968 U.S. Superintendent of Documents.

An estimated 62% of women in the employed labor force, 800,000 in 1965, were married and therefore had the dual function of wage or salary employment and household management. It is pertinent therefore that public education should establish and conduct specialized instruction for high school pupils in home economics education in preparation for household operation and management functions and offer instruction in selected subject areas to those who manage households following school separation. In recent years home economics has extended its services in recognition of the wage earning implications of normal household skills and knowledge by concentration on selected labor market needs to prepare for occupational competencies.

Society relies upon the institution of home and family living for the perpetuation of each new generation in an environment conducive to health, moral and spiritual values. Childhood, prior to school attendance establishes the basis for future development of all the complexities which identify the adult in relationship to society. The adequate and efficient functioning of the homemaker is an outgrowth of personal development plus contributing education. Home economics education makes a specific and extensive supplement to education in general.

The significance of the formative years within the family of each generation, the environment of child development, the culture of associated adults, the inculcation of ideals and habits, the tremendous purchasing power of the household are substantive concepts of home and family living which demand specific educational administrative attention. In fact, when marriage and homemaking are imminent for the individual, home economics might well be the curriculum core around which all other educational subjects are designed.

The Vocational Education Act of 1963 officially authorized the use of vocational education funds for home economics instruction which prepares pupils to enter employment in occupations related to skills and knowledge of home economics. This aspect of vocational home economics is rapidly expanding in Pennsylvania Schools. As it grows so also does the regular program grow in number and program enrichment.

The guidance and exploratory values of home economics are of significant value in expanding the knowledge and interest of pupils in the broad spectrum of occupations to which pupils might aspire on school leaving or in continuing education leading to technical and professional competencies.

The adult education courses grow out of the identity of specific community needs. The course content is adjusted to individual and group suggestions within the general scope of a common subject content.

The State and local supervisory staff in cooperation with the staff members of colleges approved for home economics teacher education continue to develop and publish administrative supervisory and curriculum materials. These and related services are excellent guides to program establishment as is the personal services of all those specialists in a consultant capacity.

INDUSTRIAL ARTS

There are a number of common elements in trade and industrial education and industrial arts education as observed by parents, teachers, school administrators and business and industrial leaders. At the same time there are significant differences between them that are usually not clear to people other than educational administrators. There is no doubt that the two programs are or should be closely interrelated and coordinated. It has often been observed that a good industrial arts program in a school system contributes greatly to an effective trade and industrial education program and vice versa.

A joint committee from the Industrial Arts Education Division and the Trade and Industrial Education Division of the American Vocational Association, in an effort to further the purposes of each program, studied and reported on guidelines which would serve as an operational description of the two programs. The committee dealt with the respective curriculums, types of schools, teachers, instructional facilities, students and guidance counseling.

A summary of the committees findings on students should be helpful in distinguishing the common elements and the differences between the two programs:

Students in Industrial Arts Education

- All students K through 12, post-secondary, college and adults, regardless of their occupational goals, could benefit from experiences offered in industrial arts.

- Programs are planned for a large variety of student objectives such as:

-- Pre-collegiate programs providing industrial information preparatory to professional study.

-- General education programs providing a broad understanding and consumer experience in industrial subjects.

-- Elementary programs providing occupational and industrial guidance and introductory experiences in industrial arts.

-- Special programs for students having mental and physical handicaps, but still capable of profiting from special courses planned for their abilities.

Students in Trade and Industrial Education

- For youth and adults whose goal is entry into, retraining for, or upgrading in trade and industrial/technical occupations.

- Students are selected in terms of potential employability.

- The minimum entry age into the program is determined by the employability age at the completion of the educational and training program.

- Students receive: A high school diploma endorsed in an occupational field upon completion of secondary programs; a certificate or associate degree with occupational endorsement for postsecondary programs; and a certificate of occupational competency for upgrading programs.

- Persons with special occupational needs are served in vocational programs.

Industrial arts education in the Commonwealth of Pennsylvania contributes to the total development of all children in kindergarten through twelfth grade.

The program for the elementary school (K-5) is in support of the other discipline areas of the school. It should tend to reduce the high levels of abstraction, which surround many subjects, to concrete concepts. Industrial arts should be thought of as a "teaching tool rather than the teaching of tools" in the elementary school.

The primary purpose of the middle school and/or junior high school industrial arts program includes the curriculum areas of manufacturing and construction, visual communications, power technology. At this level the student is exposed to the exploratory experiences which are so valuable in terms of occupational opportunities and to provide a clearer understanding of the technological world around him.

The program at the senior high school is an elective multi-phase activity on the basis of individual need and should represent the concepts of industry as listed in the objectives.

The purpose of industrial arts education is to provide experiences to the pupils concerning technology and its development of industry. The major objectives are as follows:

1. To develop literacy in a technological civilization. In such a society one must be able to communicate in the language of industry, technology and science. Hence, he must be able to read drawings and make sketches as a first step in understanding industrial society. This ability to read and sketch drawings is related to things of a technical nature such as reading and writing are associated with learning history or mathematics.

2. To develop an insight and understanding of the world of work and its place in our society. Since industry is a constructive, dynamic force in the world today, it is the responsibility of the school to provide opportunities for each student to understand this force and its occupational opportunities. Industrial arts provides significant learning activities in which students acquire knowledge and skill in performance through study and application.

3. To discover and develop student talents. The school's responsibility is to assist students in discovering and developing their talents. It is the responsibility of industrial arts education to identify special abilities through manipulative and research experiences.

4. To develop problem-solving abilities related to a variety of tools, materials, processes, and products. The problem-solving approach in industrial arts involves creative thinking, and gives the student opportunity to apply principles of planning and design. Construction techniques, industrial processes, scientific principles, and mathematical computations are applied to the solution of problems.

5. To develop skill in the safe use of tools and machines. Industrial arts provides planning, construction, and production activities which enable students to acquire industrial-technical skills. These activities offer opportunities to develop tool and machine skills commensurate with the mental and physical maturity of the student.

From these general objectives each school district is expected to develop its own objectives in light of the objectives of the educational program of the district.

The scope of the industrial arts curriculum covers the areas of manufacturing, construction, visual communications, and power technology. By using this broad base for curriculum content industrial arts programs will be able to cope with the space age or oceanography developments as well as any new materials or systems that may become available to this rapidly expanding cultural age in which we live.

The relationship between industrial arts and vocational education lies within the total understanding of technology and its effect on industrial practices. The goal of education should be to prepare pupils for limitless growth and life-long learnings. Through the experiences of an industrial arts program from grades K-10 a pupil will have an understanding of technology and occupational opportunities which will provide the student with the ability to make a more intelligent decision for his life work.

A U.S. Office of Education Industrial Arts Education Survey Report of 1966 stated, "one major fact stands out: the current industrial arts curriculum (in the U.S.) does not even measure up to the program recommended by the profession 10 to 20 years ago." The same report included in its recommendations the following:

- More industrial arts teachers need to strengthen their science and mathematics backgrounds and, keep up with advances in technology.

- Massive efforts need to be taken before the new industrial arts curriculum or any other new approach to teaching the industrial arts can make much of an impact on the current program and eventually improve the technological literacy of the American public.

TECHNICAL EDUCATION

Technical Education is concerned with that body of knowledge organized in a planned sequence of classroom and laboratory experiences usually at secondary or postsecondary level preparing students for a cluster of job opportunities in a field of technology. It requires a knowledge of mathematics, the sciences associated with the technology; an understanding of the methods, skills, materials, and processes commonly used in the technology; an extensive knowledge of a field of specialization; and sufficient in depth in the basic communication skills and related general education topics. Technical education prepares for the occupational area between the skilled employee and the professional employee such as the doctor, the engineer, the scientist; and is on the continuum nearest to the professional employee.

The technical curriculum is structured so that it prepares the graduate to enter a job and be productive with a minimum of additional training after employment to provide him with a background which will enable him to advance with the developments in the technology, and to enable him with a reasonable amount of experience and additional education to advance into positions of increased responsibility.

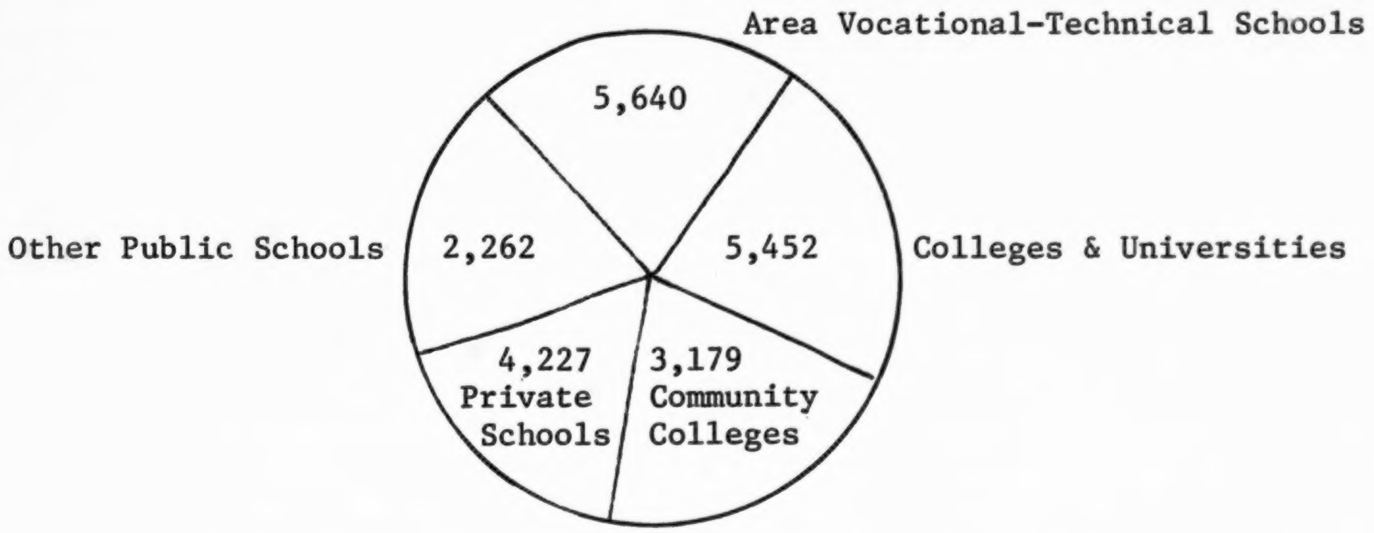
The technician is usually employed in direct support of the professional employee. For example, the engineering technician will be capable of performing such duties as designing, developing, testing, modifying of products and processes, production planning, writing reports, preparing estimates; analyzing and diagnosing technical problems that involve independent decisions, and solving a wide range of technical problems by applying his background in the technical specialties--mathematics, science, and communicative skills.

It is generally accepted that "technicians" by attainment of excellency in mental capabilities related to methods, procedures, processes, practices, principles, and techniques have filled a unique manpower need between the managerial and productive elements of all major catagories of the socioeconomic organizational structure.

Distinguishing suffixes to the "technician" title are helpful in classifying their function although such suffixes are not widely used in reporting and were extremely limited in the 1960 U.S. census enumeration. Suffixes coming into general use include: engineering, scientific, industrial, medical, agricultural, nuclear, laboratory, textile, petroleum, marine, data processing, aeronautical, chemical, drafting, surveying, electronics, metallurgical, forestry, etc. The emerging pattern of classification would therefore suggest that in the census the technician will be reported by the 43 Standard Industry Groups with which the technician is identified. Suffixes used by the employer and training instructor will be in ever increasing variety.

The schools and colleges of Pennsylvania have been diligent in establishing and operating technical courses and curriculums. Technical education programs under the Bureau of Vocational, Technical and Continuing Education were offered in the larger school districts which have had fairly broad programs of vocational education, and in area vocational-technical schools. The instructional offerings were identified in 25 course titles serving 5,640 students in 1968. The Technician Year Book of 1967-68, Prakken Publication Inc. reported course enrollments for Pennsylvania as shown in Figure 26 :

FIGURE 26



The total of 20,760 persons enrolled in Pennsylvania Schools and colleges are in a great variety of technical course or curriculum identity and in other full or part-time attendance schedules. It can be assumed that technical courses were frequently established on a cursory evaluation of the needs of the labor market and the interests of student applicants.

The need for technicians in the labor force is far in excess of the supply of technical education graduates. As Chapter XV indicates, the annual output of technical education graduates should be more than doubled if the State is to meet the demands for new technicians each year up to 1975. The problem therefore, to be resolved as in other production ventures, is distribution of the institutional product as to time and place of employment. Charles R. Bowen, IBM Corp. in a national clinic address Albuquerque, New Mexico, March 27, 1968 declared that 35% of technicians graduating from two year post-high school programs do not enter directly into employment as technicians. They either continue in higher education or take lesser jobs available. He also referred to the American Society of Engineering Education ratio standard of two technicians per scientist or engineer which would require 4,000,000 technicians by 1975 whereas in 1968 the number employed is approximately 1,000,000. Even this considerable projection is conservative because technicians are widely employed outside of relationship to scientists and engineers.

The following four publications and reports are excellent information sources in regard to technician supply, curriculum and program operation:

Technician Education Yearbook - Prakken Publications Inc. 1967-68. Ann Arbor, Michigan

Scientific & Technical Manpower Resources - National Science Foundation 1964. Washington, D.C.

Criteria For Technical Education - U.S. Office of Education 1966. Washington, D.C.

Conference on the Education & Training of Technicians in Western Pennsylvania - University of Pittsburgh, Pittsburgh, Pennsylvania March, 1968.

The question of training technicians at a specific grade level and in a specific type of institution is presently an academic jurisdictional exercise. The demand is so great, the variation of occupational function so diverse, the definition so complex, that standardization at this time is neither necessary nor desirable. It is in the best interest of efficient utilization of available resources to coordinate the use of facilities, the secondary and postsecondary levels of programs, curriculum content, and the output of graduates and their placement with the needs of the labor market. This study is pointed toward that objective and can be realized by systematic planning at the community program operating level.

It is acknowledged that some institutions cater to the interests of students primarily and view the labor market as broad and immeasurable. This viewpoint should not extend to institutions supported by public funds. The public schools of less than college grade can render an especially significant technical education service by restricting their technical courses to those identified occupational identities which advisory committees recommend. All the occupational services of vocational education may need to offer technical education courses to meet identified needs in their respective areas.

The skilled craftsman now commands more automated machinery and devices which require that he too must attain a higher level of technical competency in the practice of his craft. There is a point in the classification of highly skilled craftsmen where a blending with technical competency creates a composite workman not now clearly defined. This points up the desirability of integrating the instruction of the craftsmen and the technician within the vocational-technical laboratory in many situations.

As technology increases the output per worker, it also increases the worker's earning power and his capacity of purchase and comsumption. The increased quantity of production reduces prices, expands markets and employment. New products and new processes demand capital investments and so the cycle of economic growth continues. A considerable contribution to that growth can be made by public vocational and technical education in the establishment and operation of vocational-technical programs to meet the identified needs of the labor market.

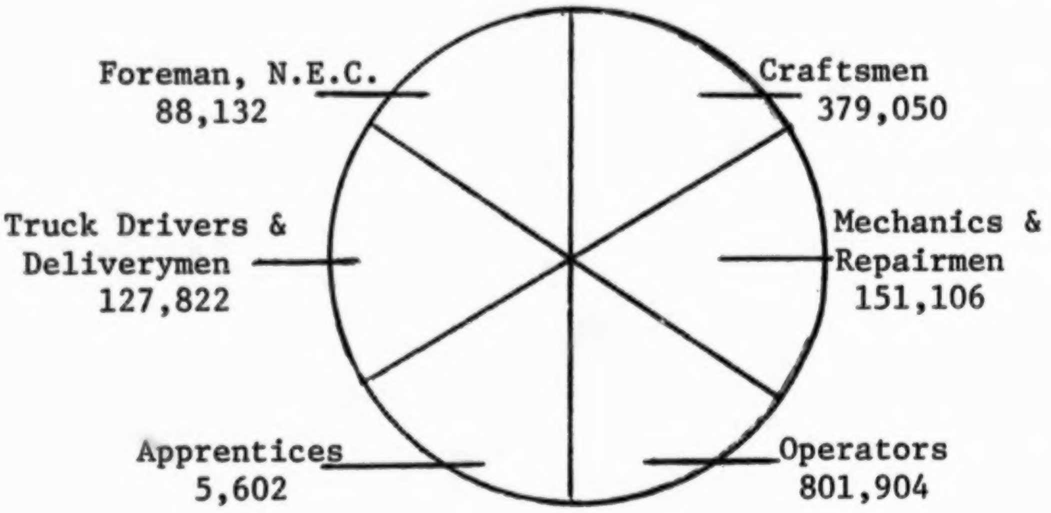
TRADES AND INDUSTRY

Trade and industrial education is the service in vocational education which is concerned with preparing persons for initial employment or for upgrading or retraining workers in a wide range of trade and industrial occupations. Such occupations, skilled and semi-skilled, are concerned with producing, processing, assembling, testing, maintaining, servicing, or repairing any product or commodity. Instruction is provided in (1) basic manipulative skills, safety judgment, and related occupational information in mathematics, drafting, and science required to perform successfully in the occupation, and (2) through a combination of shop or laboratory experiences simulating those found in industry and classroom learning. Included is instruction for apprentices in apprenticeable occupations or for journeymen already engaged in a trade or industrial occupation. Also included is training for service and certain semi-professional occupations considered to be trade and industrial in nature.

The Pennsylvania secondary program of public vocational trade and industrial education is operated generally by school districts and combinations of school districts. Secondary programs are classified as vocational departments of high schools, district vocational-technical high schools, and area vocational-technical schools. These programs enrolled 22,804 secondary students in 1967-68. They also enrolled 9,030 persons (excluding public service and retraining enrollments) in extension education for employed or unemployed out-of-school youth and adults. The instructional offerings were identified in 53 different course titles with frequent annual additions and deletions especially in the adult extension program.

The occupational classifications to which trade and industrial education is applicable are extensive and scattered across all Standard Industrial Classifications (SIC) and industry groupings common to statistical methodology. The U. S. Census, however, identifies the bulk of such occupations under the major categories of "Craftsmen, foremen, kindred workers" and "Operative and kindred workers". The first general classification will account for 24.6% of employed males and 1.0% of employed females in the 1975 projection of the labor force. The second general classification will account for 18.8% of employed males and 17.3% of employed females. The total employed in these two major categories, primarily identified with trade and industrial education, in 1975 will approximate 1,519,400 employed persons which will be 34% of the total labor force in Pennsylvania.

FIGURE 27



The journeyman mechanic is an independent workman who receives his work assignment, either oral or written and proceeds to perform the assigned task without supervision. He has attained mastery of hand and machine tools and all necessary technical knowledge and has the personal attributes to complete the assigned task proficiently. This segment of the labor force has always been in demand, even in depression years, and continues to show a steady rise in number and percentage of the employed labor force.

Semi-skilled workers are a graduation between the craftsmen and the operatives. The principal distinctions are in scope and complexity of tasks performed, technical knowledge required and nature of supervision necessary. To some extent and in certain working situations there is an upward advancement of workmen from one classification to another resulting from initiative, experience, and application recognized as on-the-job learning.

An essential element of supervision of workmen is instruction (teaching). In some industries informal and formal instruction in work performance and technical knowledge are organized and conducted. This training function may be quite extensive, either in the plant or in cooperation with schools and colleges. All such instruction is in reality vocational education operated at the expense of the employer.

Trade and industrial education in Pennsylvania has been the backbone of industrial occupational training during emergency periods. During the 1930's decade of depression, special classes for particular labor market shortages and employee upgrading were in operation where needed. Prior to and during World War II, public education utilized all school and college facilities and leased other facilities to conduct vocational training for war production workers, frequently on a 24 hour per day schedule. Following the war period public training facilities shifted to veterans' education and the peace time changes to consumer products. These emergency type programs were operated primarily in public buildings and on locally owned equipment and were in addition to the regular programs for secondary school pupils.

It is important to note that trade and industrial education, to a greater extent than other vocational education services, can rise to national manpower emergencies and can do so in future years far more effectively and efficiently by reason of investment in extensive permanent well-equipped facilities under the Vocational Education Act of 1963. The growth of the area vocational-technical school concept by local community educational leadership is a monumental testimony to local-State-Federal cooperation in the national interest.

AREA VOCATIONAL-TECHNICAL SCHOOLS (AVTS)

The area vocational-technical school (AVTS) which has developed rapidly in recent years in Pennsylvania and throughout the nation, is the administrative organization designed to make possible the needed expansion of comprehensive programs of vocational, technical, and continuing education. The purpose of the area vocational-technical school is to make occupational education programs available to all secondary school pupils, out-of-school youth and adults of the Commonwealth by the establishment of programs to serve a number of secondary schools in a given geographical area known as attendance areas. The quality of vocational education programs and services is improved by providing modern facilities, increased course offerings, and greater selectivity of pupils having similar needs and interests. Federal as well as State and local funds financed this program. The Appalachian Regional Commission also made a substantial contribution of additional Federal funds and services to the establishment of area vocational-technical schools in many of the eligible counties.

The major task of program development for vocational-technical schools is nearing completion and the future holds much promise for program enrichment and upgrading of teachers and guidance counselors to accompany this phase of development of the vocational-technical schools. Between 1963 and June 30, 1968, new area vocational-technical schools in Pennsylvania increased from five to 40 now in operation. A peak has been reached in the building construction program and it is anticipated that even with a goal of 67 area vocational-technical schools, there will be a decline in the building program in the future. Eighty-four percent of the approved courses in the area schools were in technician, health, and trade and industrial occupations. The grand total of 52 area schools either in operation or approved for building construction have an enrollment capacity of more than 50,000 students and an average number of 22 offerings in each school.

Some critics have deplored the advent of the secondary area vocational-technical schools as a separate school system. The concept of the shared-time jointly administered area school and the actual fact in Pennsylvania is far from a separate system. It is, in fact, an innovative administrative device and procedure which is akin to desired public school reorganization.

The first examples of the Pennsylvania area school concept were developed a number of years ago in Williamsport and in Fairless Hills, Bucks County. Both of these schools are excellent models of effective and efficient vocational, technical, and continuing education programs. They have extensive offerings, flexible scheduling, well-qualified instructors, revelant curricula, attuned to actual job opportunities and requirements established through competent advisory committees, and the finest of physical plant and modern instrutional equipment which simulates that used in business, industry, and agriculture. For the last ten years, both of these schools, (and now some of the subsequent 40 in operation) have served as excellent models and remarkable influence upon the establishment of similar area schools in many other States.

Over the past four years, area vocational-technical schools of different types and levels have been established at the rate of approximately 250 a year or five new area schools every week. Many of these are of the shared-time type at the secondary level as developed in Pennsylvania.

With all of this desirable development, it should not be assumed that the area type vocational schools and programs will solve all of the vocational and technical education problems and meet all of the projected labor market demands. Departments of comprehensive high schools, self-contained vocational-technical high schools, skill centers, public and private community colleges, private trade, technical and business schools, off-campus centers of colleges and universities, technical institutes and other types of institutions and programs at both secondary and postsecondary levels all have important and valuable contributions to make in meeting the needs of people and employers. The supply and demand manpower projections revealed in Chapter V of this report support the fact that if all of these existing and planned institutions and programs were operating at full capacity and maximum efficiency they would still not nearly satisfy the unmet trained manpower needs in Pennsylvania.

Hence, it is wasteful of time, money, effort, and in fact is a disservice to the public, for any particular type of institution or program to contend or argue that it can and will satisfy all the needs of people and employers. The systematic approach to State local program planning described in Chapter VI can do much in Pennsylvania to make the most effective use of all of its institutions and programs.

CONCLUSIONS AND RECOMMENDATIONS

The account of the current status of the program confirms the findings of the five year analysis, real progress and certain serious program deficiencies. Each occupational education program, when viewed in the light of the many employment opportunities in that segment of the economy and work force, takes on new significance in its effort to serve students and workers, young and old. There is little doubt that there are vast unment training needs in every one of the seven sectors of the economy. Perhaps the most latent, potential need, often unnoticed by educators, is that of upgrading the many employed and underemployed workers who need information, advice, motivation, and counseling to take advantage of the many excellent training opportunities becoming or now available in many locations in Pennsylvania.

Two of the program deficiencies previously mentioned in Chapter I, technical education and special needs really are not occupational categories in the same terms as the other services. These two programs have no particular relationship to an occupational classification in that they cut across all of the others. As Chapter II is reviewed thoroughly it becomes obvious that the traditional occupational education organization in the Bureau of Vocational, Technical and Continuing Education is not well-suited to promote and develop technical education and special needs programs. As a result, "everybody's business becomes nobody's business" and the two deficient program areas continue to be inadequately promoted and developed.

Again, it is obvious that the health occupations education program falls far short of meeting many of the training needs in the health field. Admittedly, there are difficult problems, such as high turnover or low wages to contend with in a number of the health occupations. The fact remains that patient care needs are great and serious and these can be served properly only by an adequate supply of many different kinds of well-trained health workers.

RECOMMENDATIONS

- The administration of the Bureau of Vocational, Technical and Continuing Education should concentrate attention and emphasis upon the technical and health occupations education, and the special needs programs in the Commonwealth.
- Additional staff and other resources should be allocated to the three deficient program areas as soon as possible.

SECTION I--FIVE YEAR ANALYSIS, PROGRAM TRENDS AND CURRENT STATUS OF VOCATIONAL, TECHNICAL AND CONTINUING EDUCATION

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SECTION I--FIVE YEAR ANALYSIS, PROGRAM TRENDS AND CURRENT STATUS OF VOCATIONAL, TECHNICAL AND CONTINUING EDUCATION

CHAPTER III

CONTINUING EDUCATION

INTRODUCTION

Continuing education phenomena were examined in all of the Bureaus and Divisions of the Department of Public Instruction, with the cooperation of the bureau and division heads, even though the primary focus was placed on the Bureau of Vocational, Technical and Continuing Education. It was recognized at the outset that no single type of agency carries on the total program of continuing education in the community. Hence, the repeated use of the phrase "continuing education in educational institutions of Pennsylvania."

Current aspects of administration, organization and program were studied in order to determine goals objectives and needs. At the State level, interviews and conferences were held with various staff members of the Division of Continuing Education and other agencies of the Department of Public Instruction and the Director of Continuing Education of Pennsylvania State University.

Relevant data were obtained both orally and from documents on record, and in some cases, prepared specifically for this study, which could serve as a basis for analysis of the status of continuing education in Pennsylvania's educational institution.

At the local level, preliminary interviews were conducted with selected local directors of continuing education. A questionnaire prepared on the nature, scope, organization, finance and administrative problems of continuing education was sent to a sampling of 83 public school districts, with a response of 49 usable returns. An analysis was also made of 75 returns obtained from the Bureau of Statistics of the Department of Public Instruction on a Study of Selected Adult Education Activities in Institutions of Higher Education from which data on the nature and scope of programs and enrollments for 1967-68 were obtained. Analysis was made of special reports to the Bureau of Vocational, Technical and Continuing Education on local aspects of the vocational education of adults; from the Division of Continuing Education on enrollments, finance, duties and responsibilities of supervisors in Basic Education, Civil Defense Education, Manpower Development Training and Standard Evening High Schools; the Institute of Public Service; and from the Bureau of Community Colleges.

THE MEANING OF CONTINUING EDUCATION

The term "continuing education" is used in this report interchangeably with "adult education", as is done increasingly in research and practice. Throughout this report reference is made to continuing education in the total adult education enterprise. By this is meant, all adult education activities which are planned in a series of learning situations, the purpose of which is to acquire some sort of knowledge or skill and are organized around some form of instruction.

As stated elsewhere in this report the goal of the total adult education enterprise is conceived as one in which all of the agencies of adult education in any community are operating with full recognition of the nature and function of each other, so that collectively they are providing continuing educational opportunities and so that any adult may learn whatever he needs to learn whenever he needs to learn it. This is the educative community. This report attempted to clarify the role of the Commonwealth of Pennsylvania in nourishing and leading the educative community.

CONTINUING EDUCATION PARTICIPANTS IN THE U. S.

The best measure of the nature and scope of continuing education in the total adult education enterprize was that made by Johnstone in 1962.[1] The number of participants at the present time (1969) may be somewhat higher, but the distribution of proportions between the different sponsors is probably about the same. He showed that of the 114 million adults (21 years of age or over, married, or head of a household) there were about 17 million enrollments in some course, class or study group, or about one adult to every seven. These were distributed between the following sponsoring groups as follows:

Churches and synagogues	3,460,000
Colleges and Universities	3,440,000
Community Organizations	2,450,000
Business and Industry	2,040,000
Elementary and high school	1,920,000
Private Schools	1,220,000
Government (all levels)	1,180,000
Armed Forces	580,000
All others	250,000

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[1] Johnstone, W.C., Volunteers for Learning, Report No. 89 of the National Opinion Research Center, Chicago: University of Chicago. February, 1963.

Less than one-third of the adults studying are enrolled in courses and classes of the schools and universities and colleges. This, however, is an important segment, and it is surprising, under the meager allocations of budget and personnel to schools and higher education, and the marginal status that continuing education holds in these institutions, that the participation is as extensive as it is.

Federal legislation supporting continuing education is limited primarily to aid for technological education in agriculture and industry, home economics in rural areas and remedial education to aid adults who have lost out in their previous elementary schooling and basic reading and mathematical skills. The Commonwealth of Pennsylvania has tended to model its pattern of legislation for continuing education after the Federal policy. For a few years, prior to 1966, Pennsylvania did provide categorical aid to general extension education of adults, including high school credit courses; non-credit courses in citizenship for immigrants; education of illiterates; adult education for the blind; home-nursing, home management and child care; and recreation. This was discontinued by Public Act 580 of 1966, leaving Federal and State support limited to agricultural adult education, vocational extension and retraining, basic education, and civil defense education, and some aspects of health education. There is little evidence that either Federal Government policy or that of Pennsylvania has recognized its leadership roles in the broad spectrum of the total adult education enterprise.

CONTINUING EDUCATIONAL ENROLLMENTS IN PENNSYLVANIA'S EDUCATIONAL INSTITUTIONS

The term "enrollments" refers to the cumulative enrollments and registrations, rather than enrollments of different individuals. For a rough calculation of the latter, the reader can deduct one-fourth of the figure given. The term "educational institutions" refers to public school districts; community colleges; State colleges; university extension divisions in Pennsylvania State University, Temple University and the University of Pittsburgh; and other colleges and universities. The Pennsylvania Department of Public Instruction has direct supervision over the first three of these.

The following agencies of the Department of Public Instruction have been assigned these supervisory functions in continuing education; (1) continuing education in the public school districts is supervised by the Bureau of Vocational and Continuing Education responsible to the Commissioner of Basic Education; (2) continuing education in community colleges to the Bureau of Community Colleges and in the State colleges to the Bureau of Colleges and Universities, both of which are responsible to the Commissioner of Higher Education. A fourth agency of continuing education in the Department of Public Instruction is the Public Service Institute, administratively responsible to the State Director of Vocational Education.

There is no designated single agency within the department for coordinating these various concerns with continuing education. In the three universities their extension divisions or continuing education divisions are directly responsible to the respective presidents of the institutions and their boards of trustees. There are 46 other colleges and universities, seminaries and junior colleges in the State operating some sort of continuing education, some of which are State-owned and would come under the supervision of the Bureau of Colleges and Universities.

Total registrations and enrollments of adults in continuing education programs of educational institutions in 1967-68 was 538,438, as shown in Table 32. Estimated enrollments of different individuals was 400,000. Enrollments in most of the institutions or agencies of continuing education directly responsible to the Department of Public Instruction accounted for 329,063, or about three-fifths of the total, and other institutions 209,376.

Public school district enrollments accounted for 232,562 adults in 271 school districts and institutions of higher education involved 239,118, including the 12 Community Colleges, 13 State Colleges, the University of Pittsburgh, Pennsylvania State University and Temple University, and 42 other Colleges, Universities and Seminaries which responded to a survey of the Department of Health, Education and Welfare in 1968 on adult activities in higher education institutions. [2]

If we assume that Pennsylvania follows the national pattern, in which schools, colleges and universities account for only about one-third of participants in the total adult education enterprise, it is possible that 1.5 million adults (21 years of age or over not attending an educational institution full-time) in Pennsylvania are studying each year in courses, classes and other forms.

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[2] U.S. Department of Health, Education and Welfare, Higher Education General Information Survey, Seclected Adult Education Activities in Institutions of Higher Education 1967-68.

TABLE 32

TOTAL ENROLLMENTS IN CONTINUING EDUCATION IN EDUCATIONAL INSTITUTIONS IN THE COMMONWEALTH OF PENNSYLVANIA
1967-1968

INSTITUTION OR ORGANIZATION	NUMBER REPORTING OR PARTICIPATING	ENROLLMENTS [3]
Public School Districts	271	232.562
Community Colleges	12	10,880
State Colleges	13	18,935
University Extension Divisions	3	173,706
Other Colleges and Seminaries	46	35,670
Public Service Institute	1	66,685
Total	346	538,438

The significance of this overall picture of continuing education is: (1) there is a genuine and vigorous response of adult citizens in the State to continued learning when opportunities to learn are provided by the State's educational institutions: and, (2) there is a large proportion of the adult population of 7.1 million for whom either; (a) there is no available opportunity to learn; (b) the adults are not aware of the available opportunities; or, (c) the adults are indifferent to the opportunity.

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[3] Data obtained from various Bureaus of the Department of Public Instruction and from a study by the United States Department of Health, Education and Welfare, entitled: "Selected Adult Education Activities in Institutions of Higher Education, 1967-68".

CONTENT OF PROGRAMS

Insofar as possible, the content of programs was classified in this study under four categories, generally reflecting the interests and objectives of the learners. These were:

1. Vocational and Technical Adult Education, including all educational activities designed to impart information skills and attitudes that would lead to entry into an occupation of less than a professional level, and/or would provide education for refreshment, advancement and upgrading in any occupation.
2. Basic Elementary and Secondary Education of Adults, including all educational activities designed to aid the learner to complete twelfth grade or its equivalent, and/or any grade level of schooling below the twelfth grade, and/or any elementary or high school subject.
3. Civic and Social Adult Education, including any educational activity designed to aid the adult in becoming a better informed and more understanding participant in the social institutions of his community, State or nation, and to meet more competently the decisions that he must make as an adult citizen or parent, and other critical decisions of adult life.
4. Education for the Uses of Adult Leisure, including those educational activities that prepare the adult to use more wisely and agreeably the increasing amount and proportion of his time that is not for sale or hire, and to explore the maximum potentials of his personality.

The specific types of subject-matter generally found within these four categories are listed in Chapter VII dealing with job responsibilities in the organization and administration of adult education in Pennsylvania. Tables 32, 33, and 34 show the current distribution of enrollments in these types of subject matter in Pennsylvania's educational institutions.

VOCATIONAL AND TECHNICAL ADULT EDUCATION

As noted in Table 33, the predominant emphasis in both public school districts and higher educational institutions in Pennsylvania is in vocational and technical education of adults. In the public school districts, about one-third of all enrollments are in this field. If the enrollments in the Public Service Institute are added to this, both of which are operating under local public agencies of the State, approximately 40 per cent of all activities are vocationally oriented. One could also justify the assumption that most of basic elementary and secondary education of adults is for the purpose of qualifying the adult participant for a job or for advancement on a job. With this addition, it might be said that over two-thirds of the emphasis in public school and public service continuing education is vocationally oriented.

TABLE 33

TYPES OF CONTENT AND ENROLLMENTS IN CONTINUING EDUCATION IN PUBLIC SCHOOL DISTRICTS OF THE COMMONWEALTH OF PENNSYLVANIA, 1967-1968

Type of Content	Enrollments	Totals
Vocational and Technical		
Agricultural Education	4,233	
Business Education	20,000	
Distributive Education	3,837	
Health Occupations Education	5,039	
Manpower Retraining	5,600	
Trades and Industry	18,549	
Other [4]	14,940	
Total Vocational and Technical		72,198
Adult Basic Education		
Basic Elementary Education	10,000	
Standard Evening High School for Adults	20,601	
Other [4]	17,180	
Total Adult Basic Education		47,781
Adult Civic and Social		
Civil Defense Education	48,000	
Other	8,818	
Total Adult Civic and Social		56,818
Personal Development and Adult Uses of Leisure Time [5]	25,529	
Total P.D. and Leisure Time Ed.		25,529
Unclassified		15,000
TOTAL ENROLLMENTS IN PUBLIC SCHOOLS		217,326

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[4] Estimated portions of enrollments classified in Table 37 as "General Extension Non-Credit".

[5] Estimated enrollments in ten school districts with continuing education programs organized and operated by citizens groups not responsible to the Board of Education.

TABLE 34

TYPES OF CONTENT IN CONTINUING EDUCATION IN UNIVERSITY EXTENSION DIVISIONS, STATE COLLEGES AND COMMUNITY COLLEGES IN THE COMMONWEALTH OF PENNSYLVANIA 1967-1968

Type of Content	Number of Activities and Offerings			
	University Extension	State Colleges	Community Colleges	Total
Vocational and Technical				
Physicians and Surgeons	121	-	-	121
Educators	21	70	-	91
Social Workers: (Rehabilitation, Crime and addiction prevention, Metal Health, Migrant workers, etc.)	37	9	-	46
Engineers	41	2	-	43
Dentists	37	-	-	37
Public Service Workers	9	7	4	20
Nurses	8	-	-	8
Businessmen, Accts., Data Processors Secretaries		6	2	8
Scientists	1	9	-	10
Industrial Mgrs.	4	2	-	6
Pharmacists	1	1	-	2
Parents	-	1	2	3
Librarians	-	2	-	2
Total Vocational and Technical	280	109	8	397
Non-Vocational				
Basic Elementary & Secondary				
Basic Adult Education	-	-	2	2
Civic and Social				
Human Relations	-	3	-	3
Public Affairs & Issues	2	3	-	5
Personal Development and Use of Leisure				
Arts, Music, Drama	-	3	-	3
Physical Fitness	2	-	-	2
Driver Education	2	1	-	3
Total Non-Vocational	6	10	2	18
Total Activities & Offerings	286	119	10	415

In the higher educational institutions (Table 34), no breakdown of subject matter enrollments was available. However, the study of the United States Department of Health, Education and Welfare, previously cited, analyzed the number and types of educational activity according to method and for whom each type was offered. Of the 425 courses, classes, lecture series and other study methods employed, 407 of them, or 95.5 percent were in the vocational and technical fields. All of the courses of the Public Service Institute were vocational, as shown in Table 34.

BASIC ELEMENTARY AND SECONDARY EDUCATION OF ADULTS

The public school districts are the best equipped of all educational institutions to assume the responsibility for raising the level of academic schooling in the State to that of the twelfth grade. According to Table 33, Pennsylvania offered such opportunities to 47,781 adults in 1968. This consisted of three types of remedial schooling: (1) basic elementary education leading to eighth-grade equivalency; (2) Standard Evening High School designed to aid the adult in qualifying for a high-school diploma; and, (3) elementary and high school subjects designed to aid the adult in meeting some deficiency in his previous schooling. While some forms of basic elementary education is encouraged by Federal appropriations, some of it, and all basic secondary education of adults is left entirely to the local community and/or the individual student to support. Thus, it can be said that Pennsylvania takes no legal or financial position in raising the level of schooling of adults beyond the eighth-grade level.

This position of the State is unsound. In most positions in the State government offices themselves the applicant is required to have a high school diploma or its equivalent. This has become a prevailing standard

TABLE 35

ENROLLMENTS IN CONTINUING EDUCATION IN THE PENNSYLVANIA PUBLIC SERVICE INSTITUTE BY TYPES OF CONTENT, 1967-1968

TYPE OF CONTENT	ENROLLMENTS
Vocational and Technical for:	
Municipal Officials [6]	5,813
Minor Judiciary	1,915
Firemen	26,161
Police	8,201
Correctional Workers	11,799
School Maintenance, Custodial Bus Drivers and Secretaries	6,466
Sewage Plant Operators	1,448
Recreational Workers	4,833
Defensive Driving	49
Total Public Service Enrollments	66,685

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[6] Includes Borough and Township Officials and Inspectors, Zoning Officials and Water Pollution Officials, Planning Officials and Assessors.

for most jobs in industry and other employing agencies. Apart from the economic necessity of twelfth-grade schooling, anyone with less than that is operating under handicaps as a parent and citizen of his community. Table 36 shows how far short of this goal the State was in 1960. The intervening decade may have narrowed the gap somewhat between the goal and reality.

CIVIC AND SOCIAL ADULT EDUCATION

It is obvious from Tables 33 and 34 that this type of continuing education is relatively undeveloped in Pennsylvania. Were it not for the enrollment of 48,000 adults in Civil Defense Education the number of enrollments in civic and social adult education would be insignificant in the public school district programs. In higher educational institutions only 8 of the 425 activities and offerings reflect a concern for this type of continuing education.

EDUCATION FOR THE USES OF ADULT LEISURE

Only 25,259 of the 232,562 adults enrolled in continuing education in the public school districts of Pennsylvania, or slightly more than 10 percent, were using opportunities to aid them in making wiser uses of their leisure time. In the universities and colleges only 8 of the 425 types of educational activities dealt with adult uses of leisure time.

It has been pointed out elsewhere in this report that in the United States we have already reached a point, unprecedented in history, where adult leisure-time exceeds adult work-time. Those of us who have full-time jobs, with modern provisions of shorter work weeks, vacations, leaves and retirement, will spend only about one-fourth to one-third of our waking hours at remunerative work. Almost one-third of all the 4,186,086 workers in the labor

TABLE 36

YEARS OF SCHOOL COMPLETED BY PERSONS 25 YEARS OF AGE AND OVER IN PENNSYLVANIA IN 1960 [7]

Years of School Completed	Number 25 years +
None	145,521
1-4	307,669
5-6	516,687
7	455,552
8	1,349,945
Total Completing 8th Grade or Less	2,775,374
9-11	1,311,191
12	1,687,167
Total Completing 12th Grade or Less	2,998,358
13, 14, 15	407,072
16	425,825
Total Completing above 12th Grade	832,897

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[7] Data obtained from the United States Census, 1960

force in Pennsylvania in 1960 worked only 39 hours or less, and some as little as 13 weeks or less during the previous year.[8]

Leisure time is no longer a privilege of the elite; it threatens to become a social problem of first magnitude. That the educational institutions of Pennsylvania have not yet adequately responded to this social problem is apparent from the past and present record of their neglect of continuing education fro the adult uses of leisure.

METHODS OF STUDY

One of the aspects of quality of continuing education programs is the sponsoring institution's adaptability to new ideas and inventions in the technology of learning. Since continuing education of adults must be "custom built" to fit both the circumstances and needs of adult life and the demands of the nature of the content, it is impossible to carry on a high quality program that is designed primarily for the schooling of children and youth in schools and colleges. This is not to say courses and classes do not have a place in continuing education; it simply means that wherever these are the only methods present, the sponsoring institution and its continuing education leaders are not adaptable to new inventions and ideas. Hence, the quality of the program suffers.

There are several methods that have proven useful in continuing education, some of which are unique to the education of adults. The following are listed and defined from the study of Adult Education Activities in Higher Education previously cited. They are: classes; short courses; conferences; institutes and workshops; lectures; discussion groups; correspondence study; television and radio education; closed circuit television.

METHODS USED IN CONTINUING EDUCATION IN PENNSYLVANIA'S EDUCATIONAL INSTITUTIONS

Public School Districts. Predominating in public school district continuing education programs is the class method, with most class terms beginning and ending almost coterminously with the semester terms of children and youth. This pattern is primarily an administrative convenience. There is not much justification for it in the way adult life is organized except that it may coincide somewhat with the time that parents have their children in school. With the exception of on-the-job training and apprenticeship education in the vocational fields, the method of public school continuing education is almost exclusively the class method.

The Public Service Institute. The method employed by this agency is almost exclusively that of the short course, differing from the class method primarily in that it extends over a more limited period of time and may begin and end at any time. In some aspects of the program of the Public Service Institute, such as its Fire School, the demonstration method is applied.

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[8] Data derived from "Weeks Worked by Workers in the Pennsylvania Labor Market," United States Census of 1960.

Community Colleges. As noted in Table 37 , over half of the enrollments in continuing education are in classes and short-courses, both credit and non-credit, but predominantly the latter. The other half are in conferences, institutes and workshops, and lecture series, all on a non-credit basis. In a few cases community colleges have ventured into the use of discussion groups, and in one case closed circuit television.

TABLE 37
CONTINUING EDUCATION ENROLLMENTS IN HIGHER EDUCATIONAL INSTITUTIONS OF PENNSYLVANIA BY TYPES OF METHOD, 1967-68 [9]

Type of Method	Enrollments				
	University Extension	State Colleges	Community Colleges	Other Colleges	Total
Classes					
Credit	19,937	815	3,648	9,415	33,815
Non-Credit	30,401	420	1,468	4,210	36,499
Short Courses					
Credit	285	-	-	136	421
Non-Credit	37,537	782	536	11,629	50,484
Conferences, Institutes and Workshops					
Credit	318	289	-	291	898
Non-Credit	38,970	11,524	1,645	6,436	58,575
Lecture Series					
Credit	1,500	-	-	1,079	2,579
Non-Credit	2,675	3,825	2,300	1,649	10,449
Discussion Groups	16,155	1,280	525	390	18,350
Correspondence Courses	17,603	-	-	6	17,609
Television & Radio	53	-	-	365	418
Closed Circuit	6,072	-	748	-	6,820
Other	2,200	-	-	64	2,264
Totals	173,706	18,935	10,870	35,670	239,181

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[9] Unless otherwise indicated all enrollments are non-credit. Combined total of credit and non-credit.

Source: Untabulated returns from a Study of Activities In Adult Education In Higher Education Institutions, 1967-68, conducted by the United States Department of Health Education & Welfare.

State Colleges. Table 37 shows that these institutions emphasize particularly conferences, institutes and workshops. There are a few classes, short-courses and discussion groups but they have not yet come into general use in State colleges.

University Extension Divisions. As noted in Table 37, there is a wide range of methods used in the university extension divisions in the three universities studied: Pittsburgh University, Temple University and Pennsylvania State University. Of these three, far more evidence of adaptability to new ideas and inventions is found in the program of the Pennsylvania State University Extension Division. The bulk of Temple University's enrollments are in discussion groups, 15,809 enrollments of the total of 22,659 in 1967-68. Pittsburgh University's continuing education enrollments for the same year of 18,263 were about equally distributed between short courses; conferences, institutes and workshops and closed circuit television. The Continuing Education Division of the Pennsylvania State University shows large enrollments in all types of methods studied except television and radio education and closed circuit television. It is the only higher educational institution in the State that offers correspondence study programs, with the exception of a small group served by the Philadelphia College of the Bible.

Other Colleges and Universities. Of the 38,262 enrollments in all other colleges, seminaries and junior colleges in 1967-68 in continuing education programs, 25,249, or almost 70 percent were in classes and short courses, with the balance of enrollments primarily in conferences, institutes and workshops and lecture series.

One fact that is fairly well established in the research on continuing education is that the more the methodology of the sponsoring institution looks like going back to "schooling" of the past, the less palatable it is to adults. There is too little evidence of bold experimentation with adult education that is adult in content and method in the public schools, community colleges, State colleges and the Public Service Institute. If a measure of adaptability were applied to these institutions as Mort & Ross [10] did in the elementary and secondary education fields, they would undoubtedly come out with a fairly low score. At the core of the lag in adaptability is the nature and quality of leadership, both administrative and instructional, in continuing education.

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[10] Mort Paul R. & Ross, Donald H. Principles; School Administration Second Edition, New York: McGraw-Hill, 1957, pp. 177-212.

STATE LEADERSHIP IN CONTINUING EDUCATION

Time limits of the period of investigation of the study did not permit as precise or as comprehensive a study of the scope and quality of continuing education leadership as desirable. Only three aspects of the scope of leadership in educational institutions were investigated; (1) the administrative and supervisory leadership at the State level of continuing education in the Pennsylvania Department of Public Instruction; (2) administrative and instructional leadership at the State level in the Continuing Education Division of Pennsylvania State University; and (3) administrative and instructional leadership in the public school districts at the local level. No effort was made to study the quality of leadership in professional background, experience and commitment.

DEPARTMENT OF PUBLIC INSTRUCTION LEADERSHIP IN THE BUREAU OF VOCATIONAL AND CONTINUING EDUCATION

The responsible leadership in the Bureau of Vocational and Continuing Education is the head of its Division of Continuing Education. Under his direction are four supervisors for: (1) Basic Adult Education (limited to certain aspects of basic elementary education); (2) Civil Defense Education; (3) Manpower Retraining; and (4) Recreation (limited to State mandates for the recreation of children and youth). The head of the division assumes the responsibility for general adult education and standard evening high school education of adults. To one or another of these supervisory offices there are attached 13 field agents. These, together with the supervisors and the head of the division make a total of 18 administrative supervisory and field officers.

Except for Civil Defense Education, there is no specialized State leadership in the area of adult civic and social education and no State program in the area of education for adult uses of leisure and no specialized leadership in the secondary education of adults. Responsibility for adult vocational education is divided within the Bureau of Vocational and Continuing Education between its two divisions.

DEPARTMENT OF PUBLIC INSTRUCTION LEADERSHIP IN THE BUREAUS OF COMMUNITY COLLEGES AND BUREAU OF COLLEGES AND UNIVERSITIES

The Bureau of Community Colleges has recently assigned a man who, among a number of duties and responsibilities, will become the bureau's liaison officer with community services and continuing education activities and programs. In view of the fact that most of the community colleges of the State are new and are still in the formative stage of the process of program planning, this is a commendable step. If close coordination and liaison can be developed between the continuing education divisions of the Bureau of Community Colleges and the Bureau of Vocational and Continuing Education, there is no reason why the specialized personnel for the recommended program planning, program services and program operation of the Continuing Education Division in the Bureau of Vocational and Continuing

Education could not be of mutual advantage to both bureaus.

There is no person in the Bureau of Higher Education who has been assigned duties and responsibilities for continuing education. The fact that 18,935 adults were enrolled in State college continuing education programs in 1967-68 was due to the initiative and sensitivity to need of the respective State college administrators and faculties, rather than to any leadership of the Bureau of Higher Education.

DEPARTMENT OF PUBLIC INSTRUCTION LEADERSHIP IN THE PUBLIC SERVICE INSTITUTE

The Institute is headed by an Executive Director who is Secretary to the Administrative Board of the Institute but administratively is responsible to the State Director of Vocational Education. He has an administrative assistant and nine field supervisors, each responsible for a specialized aspect of public service education.

LEADERSHIP IN THE PENNSYLVANIA STATE UNIVERSITY DIVISION OF CONTINUING EDUCATION

In Pennsylvania State University Education Division there are 18 members of the professional staff at the State level, consisting of the director, two associate directors, four assistant directors and nine special service directors.

LOCAL AND REGIONAL LEADERSHIP OF CONTINUING EDUCATION

Except in the continuing education programs in public school districts, this study did not make any attempt to examine personnel and leadership beyond the State level. Nevertheless, a few significant facts were revealed about local and regional leadership in other educational institutions than the schools as the study progressed, which can be briefly summarized:

Community Colleges. In the survey of the United States Department of Health, Welfare and Education, previously cited, twelve community colleges reported on their adult education activities. Only two of these listed the title of director or dean of continuing education. Similarly in the State colleges only two of the thirteen institutions indicated that there was a special position responsible for continuing education. Otherwise these responsibilities seemed to be assigned as a part of the position of other members of the administrative staffs, such as, assistant to the dean or president, dean of students, associate dean and the like.

Public Service Institute. Local leadership is drawn from the respective specializations on a voluntary *ad hoc* basis during the period of one of the short courses, supplemented by the field supervisor from the State office.

PENNSYLVANIA STATE UNIVERSITY'S CONTINUING EDUCATION DIVISION

Regional leadership is generally assigned to the director of the campus branch who in some cases may appoint an assistant director of continuing education. In Pennsylvania State University's Branch Campus Centers there are 19 such assistant directors, responsible to the director of the campus branch, who, as far as the branch's continuing education program is concerned is responsible to the parent institution's director of continuing education. No attempt was made to examine the regional organization of other higher educational institutions with branch campus centers.

Public School Districts. In an effort to examine problems of local leadership in continuing education in Public School Districts a special questionnaire was designed. This was tested in interviews with several local Directors of Continuing Education. A selection of 83 of the 271 Public School Districts with some type of continuing education programs was made by the State director of continuing education to receive the questionnaire on the basis of a broad representative sampling. 53 of the 83 questionnaires were returned, or 63.8 percent. Forty-nine of these were usable.

TABLE 38

PUBLIC SCHOOL CONTINUING EDUCATION ENROLLMENTS OF FORTY-NINE SELECTED PUBLIC SCHOOL DISTRICTS IN CERTAIN CATEGORIES OF ADMINISTRATION OF CONTINUING EDUCATION

Continuing Education Program Administrator	Number of Districts	Total Continuing Education Enrollments
Superintendents	4	2,530
Assistant Superintendents or Other Staff Members	7	1,605
Elementary or Secondary School Principals or Vice-Principals	7	3,245
Full-time Directors of Continuing Education	8	74,999
Part-time Directors of Continuing Education	23	20,123
Total	49	102,502

TABLE 39

RATIO OF ADULT EDUCATION ENROLLMENTS TO ADULT POPULATION[11] IN CERTAIN CATEGORIES OR ADMINISTRATIVE LEADERSHIP IN FORTY-NINE SELECTED PUBLIC SCHOOL DISTRICTS[12] OF PENNSYLVANIA

Administrative Officers Responsible for Continuing Education	No. Dist.	Est. Adult Pop.	Adult Enroll.	Ratio Of Enrollments To Adult Pop.
Director of Continuing Education	31	2,296,000	95,122	1-25
Other Line or Staff Officers	18	718,345	7,380	1-95
All Districts	49	3,014,345	102,502	1-30

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[11] United States Census of 1960. Population 21 years of age or older.

[12] Four of the reporting districts did not have complete data to be included.

An effort was made to determine relationships between certain factors and the type of leadership provided locally. There appeared to be little or no relationship between the wealth or size of a school district and the appointment of either a part-time or full-time director of adult or continuing education. But there did seem to be a significant relationship of the response of adults to continuing education opportunities and the type of administrative leadership. Tables 38 and 39 suggest that where school districts employ a director of continuing education, the adults of the community respond to the program to a greater degree. Of the 31 districts with either a part-time or full-time director, the ratio of enrollments to the estimated adult population was 1 adult enrolled for every 25 adults in the community. In the 18 districts responding, where the responsibility for administration was a part of the job of some other administrator, such as the superintendent, a member of his staff or a principal of an elementary or secondary school, the ratio was 1 adult enrolled to every 95 in the adult population.

These data would indicate that if Pennsylvania is concerned with broadening the opportunity for adults to continue to learn, one of the most direct and effective steps it could take toward that objective would be to aid and encourage local districts to employ a director of continuing education, whose responsibility it would be to meet the needs of adults and to plan the programs of continuing education.

Only 8 of the school districts in Pennsylvania have a full-time director or its equivalent; eleven other States have more full-time directors than Pennsylvania, ranging from 10 in Massachusetts to 129 in california.[13]

PROBLEMS OF LOCAL ADMINISTRATION OF CONTINUING EDUCATION

The questionnaire sent to school districts contained two openended questions asking administrators to specify their major problems locally and in their relationships with the Department of Public Instruction. It also asked the respondents for suggestions to remedy the problems. Tables 40 and 41 summarize these problems. Inadequate financing and public support, both at the State and local level was the most pressing problem. Two other problems are closely related: (1) inadequate time for the person responsible for continuing education to do the kind of job he knows should be done. This is understandable when 41 of the 49 respondents are charged with numerous other administrative responsibilities that are, in reality, full-time jobs, in the education of children and youth; (2) the problem of recruiting and holding qualified teachers.

As shown in Table 42 there are 10,357 teachers employed in continuing education programs of public school districts. Only in the adult vocational education program are there any full-time teachers for whom teaching adults is their major profession, 781 in the adult vocational programs and 137 in manpower development and training, or a total of 818. All others must be recruited from other full-time occupations which demand a first priority of the teachers' energy, professional commitment and time. When one of these priorities is threatened by the extra responsibility of teaching a continuing education class, it is, naturally the latter that must give way. Very often

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[13] National Association of Public School Adult Education, Public School Adult Education Almanac, 1968, Washington, D.C., the Association, p. 33.

TABLE 40

MAJOR ADMINISTRATIVE PROBLEMS OF FIFTY-THREE SELECTED PUBLIC SCHOOL DISTRICT ADMINISTRATORS OF CONTINUING EDUCATION

Problem	Number of Respondents	Percent
Total Responses	53	100
1. Financial-need more money to do what needs to be done	24	45.3
2. Difficulty in recruitment and holding high quality teachers	18	34.0
3. Director needs more time and/ or assistants	12	22.6
4. Difficulty in recruitment of adult students-publicity techniques - determining needs, etc.	12	22.6
5. Teachers salaries too low	5	9.5
6. Indifference in Community Support	3	5.

TABLE 41

REACTIONS OF FIFTY-THREE SELECTED PUBLIC SCHOOL
ADMINISTRATORS OF CONTINUING EDUCATION TO INQUIRY OF
PROBLEMS ENCOUNTERED IN WORKING WITH THE DEPARTMENT OF PUBLIC INSTRUCTION

Problem	Number Indicating Problem	Percent
Total Returns	53	100
Stated that no problems were apparent or that relationships were good	19	35.9
Not enough face-to-face contact with State department staff	12	22.7
Needs more highly specialized staff	3	5.5
Did not respond	19	35.9

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TABLE 42

NUMBER TEACHERS EMPLOYED IN CONTINUING EDUCATION PROGRAMS OF THE PUBLIC SCHOOL DISTRICTS OF PENNSYLVANIA, 1968-1969

Content Area	Number Employed		
	Part-time	Full-time	Total
Basic Adult Education			
Elementary	473	-	473
Standard Evening H.S., Citizenship, Education of Blind	580	-	580
Vocational Education			
Trades & Industry, Distributive, Business, etc.	1,765	781	2,546
Public Service	965		965
Manpower Development Training	202	137	339
General Adult Education	2,854		2,854
Adult Civic & Social			
Civil Defense	2,600		2,600
Totals	9,439	918	10,357

the demands of this dual responsibility of the teacher of continuing education are either in conflict with each other or the director of continuing education must water down the requirements he sees necessary to improve the teaching of adults. For example, a teacher of standard evening high school or basic elementary education has demands made upon his time and energy for in-service education in his major occupation. The director of continuing education sees the need for similar in-service workshops or institutes for teachers of adults. The teacher, caught between two thoroughly justifiable demands, may respond to the latter reluctantly, if at all, or, the Director, understanding the conflict simply does not have a program of in-service development in continuing education.

There is no easy solution to this problem of dual professional responsibility in continuing education. Some of the most competent teachers of adults are competent because of their experience and scholarship in other fields. On the other hand teaching adults successfully does not necessarily follow because the teacher is successful in some other field, be it teaching children and youth or being a successful artist, electrician or sociologist. The teaching and learning process in continuing education is unique in many respects. Because of this the director of continuing education should have time to work with teachers individually and in small groups. He must have time to study the competent and successful people in occupations other than teaching to recruit the best possible teachers. He must have time and assistance from the State Department of Public Instruction and the Universities to develop teaching aids and devices appropriate to adult education.

These problems of the directors of continuing education in local school districts can be greatly reduced in scope and intensity by joint attack upon them at State and local levels. One step that might be taken in at least some of the larger districts or combinations of the smaller ones is the development of a core of a few full-time teachers of continuing education who see as challenging a career in continuing education as they do in other fields. This core of full-time teachers, supplemented by the part-time faculties, would go a long way toward improving the stability and professionalism of continuing education in the State.

EDUCATIONAL GUIDANCE AND COUNSELLING IN CONTINUING EDUCATION

Only in two or three communities in Pennsylvania is there any serious effort made to provide competent counselling services to assist the adult to make wise choices in selecting the type and quality of program that will best meet his needs. Even those that exist do not have the kind of educational counselling in which the counsellor goes out to the individuals and groups in the community to inform them of the available continuing education resources in the community and how these resources might assist the adult in meeting his problems.

Guidance and counselling specialists in high schools, colleges and in employment offices generally are either not prepared with the appropriate knowledge and understanding of continuing education needs and resources.

Their major concerns are the counselling of youth about further education in college or job entry and advancement. Yet there are thousands of young adults as well as older ones whose educational problems and needs are focused not on college or even occupational selection and advancement, but rather, stem from problems and critical points in the adult life cycle, such as parenthood, and other family problems, retirement, community and neighborhood acceptance, loss of spouse, and others. While there are available special adult counselling services related to some of these critical points in the adult life cycle, there is need for a type of counsellor whose business it is to aid the adult in making the right choices about where to go to learn what and to help motivate him to utilize these resources.

FINANCING CONTINUING EDUCATION IN THE DEPARTMENT OF PUBLIC INSTRUCTION AND PUBLIC SCHOOL DISTRICTS

State and Federal appropriations and grants applicable to continuing education in Pennsylvania are shown in Table 43. Except in adult vocational education there is no foundation program or other general State support. Grants for basic education, manpower development training and civil defense education are primarily from Federal funds. Funds used by the Public Service Institute are allocated through the Bureau of Vocational, Technical and Continuing Education. Table 43 shows how these State and Federal funds are supplemented by the local school districts, student fees and other grants directly to the local community in 49 of the 53 selected school districts surveyed in the special questionnaire of the study. There are some significant interpretations that can be made of Table 44 in regard to the cost per student in continuing education in Pennsylvania and the share of the cost borne by different sources.

The total enrollment in 49 of the 49 responding school districts continuing education programs whose data could be used was 102,502 as shown previously in Table 38. Total expenditures from all sources from these districts was $3,741,762.00. Dividing the latter by the former an average cost per enrollee in 1968-69 was $36.63. Of this amount about an equal amount was spent from school district funds and from State and Federal sources, $16.03 and $15.69 respectively. However, when one adds the special grants received in a few communities, most of which were from Federal funds,

TABLE 43

STATE AND/OR FEDERAL MONIES EXPENDED FOR CONTINUING EDUCATION UNDER THE SUPERVISION OF THE PENNSYLVANIA DEPARTMENT OF PUBLIC INSTRUCTION, 1968

Purpose	Amount Allocated To:		
	State Admin. & Supervision	Local Programs	Total
Basic Adult Education	$ 78,000	$ 1,859,000	$ 1,937,000
Adult Vocational Education	458,887	3,909,370	4,368,257
Trades & Industry, Distribution, Business			
Manpower Development Training	227,454	4,127,370	4,354,824
Public Service Ed.	186,305	217,535	403,840
Civic & Social Adult Ed.			
Civil Defense Education	103,000	94,000	197,000
Education for Uses of Adult Leisure	-	-	-
General Administration Office of Continuing Education	64,541	-	64,541
	$ 1,118,187	$ 10,207,275	$ 11,325,463

TABLE 44

EXPENDITURES IN CONTINUING EDUCATION IN FORTY-NINE SELECTED SCHOOL DISTRICTS CLASSIFIED ACCORDING TO TYPES OF ADMINISTRATION AND ESTIMATED COSTS PER ADULT ENROLLED [14], 1968-1969

Type of Administration of Continuing Education	No. School Dists.	Expenditures				
		School Dist.	State & Fed.	Student Fees	Other[15]	Total
Full-Time Directors	8	$1,451,568	$1,450,367	$ 21,096	$357,644	$3,280,675
Part-Time Directors	23	72,744	92,181	78,264	5,580	248,769
Superintendents	3	67,704	4,040	-	-	71,744
Superintendent's Staff	9	19,321	40,933	13,020	3,750	77,024
School Principals & Vice-Principals	6	21,700	21,300	4,600	16,000	63,600
Totals	49	$1,633,037	$1,608,821	$116,980	$382,974	$3,741,812
Expenditure per Student Enrolled		$16.03	$15.69	$1.14	$3.77	$36.63

---

[14] See Table 38 total enrollment in 49 Selected Public School Districts, 102,502.

[15] Includes grants for special projects in a few districts.

the average expenditure per student enrolled to State and Federal funds was $19.46. The average amount of fees per student enrolled was $1.11 but many districts did not charge any fees. If the amount of fees had been divided by enrollments in the districts which charged them, the fees would have been much higher.

From any viewpoint, compared to the huge and mounting costs of education of children and youth, a great amount of value can accrue to the State with very modest expenditures. An additional expenditure of $10,000,000 in State categorical aid for continuing education could broaden the educational opportunity in Pennsylvania for almost twice as many adult citizens as are now enrolled in continuing education activities in public school districts, community colleges and State colleges, assuming that other sources of support remained the same as they are now. These projected estimates are calculated on the basis of the amounts that go to local communities. A reasonable addition for State administration and supervision, according to present experience could be from 8 to 10 percent of total expenditures.

More important than the effect of State categorical aid for continuing education in the educational institutions of the Department of Public Instruction on the quantitative extension of continuing educational opportunity, is its qualitative impact. Throughout this report it has been emphasized that the major emphasis of the Department of Public Instruction's program has been in only one of the four basic categories of continuing education, namely, the vocational and technical education of adults. Extensions of categorical State aid to continuing education could be formulated to advance the other three types of adult education: (1) basic elementary and secondary education of adults, particularly in the basic secondary education programs; (2) civic and social education of adults; and (3) education for adult uses of leisure time.

Financial and leadership support for such a program would place the Commonwealth of Pennsylvania in the vanguard of the growing edge of continuing education in public educational institutions, and would place these institutions in a position in their communities to enhance the continuing educational movement in the total adult education enterprise.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions. In the total continuing education enterprise of the United States, 17 million of the 114 million adults were studying in some kind of continuing education program sponsored by an institution or organization 191,962, or about one adult in every seven. Of this number, 5.3 million or over one-third were studying in continuing education programs sponsored by public school districts and higher education institutions. Continuing education is a vital aspect of the life of educational institutions, and the pressures on these institutions for further development and leadership will increase and intensify during the next decade.

Federal legislative support for continuing education is limited primarily to technical and vocational adult education, education for home and family life in rural areas and remedial schooling at the elementary level. Pennsylvania has tended to model its legislative support after the Federal pattern. Many other States have gone beyond this.

The responsibility for vision and supervision regarding continuing education in the Department of Public Instruction is scattered and diffused, with no catalytic mechanism provided.

Content of programs in continuing education in the educational institutions of Pennsylvania is predominantly focused on vocations. Only minor emphasis is given to civic and social adult education, education for the uses of adult leisure. Even the basic secondary remedial school for adults is left largely to local school districts although both government and industry are tending to make high school graduation or its equivalent a general standard for job qualification.

In method and techniques of continuing education, the Department of Public Instruction has done little to encourage adaptability to innovations and new inventions in the technology of continuing education. The predominant method in continuing education in schools and colleges under the supervision of the Department of Public Instruction is the semester or term class, borrowed from the prevailing method of the schooling of children and youth. Experimentation and encouragement of the use of methods peculiarly appropriate to the education of adults has been left largely to other agencies.

In encouraging local communities to recognize administration and teaching of adults as a profession as important as the administration and teaching of children and youth, Pennsylvania is also retarded. Yet this study shows a positive correlation between the use of adult education resources by the community and delegation of specialized administrators of continuing education.

Excellence in quality of teaching adults suffers in Pennsylvania because of the fact that teaching adults persists in being a supplementary occupation to some other major professional commitment. The dual and often conflicting demands for the continuing education teacher's time, energy and professional growth results in making the teaching of adults a secondary concern of the teacher.

Adult educational counselling, designed to help the adults of the community make wise choices about where to go to learn what that will best meet their needs, is practically non-existent in Pennsylvania.

The expenditure of continuing education per adult enrolled is minor in amount but probably yields greater dollar-for-dollar returns to the community than the education of children and youth, primarily because the adult seeks education to meet some basic problem of life. In Pennsylvania the overall expenditure per adult enrolled was $36.00 in 1968-1969. Of this amount local school districts and student fees accounted for about the same as combined Federal and State funds from all sources. For relatively small State-aid for continuing education, as compared with the costs of the schooling of children and youth, the State could receive significant dividends.

Recommendations. The Commonwealth of Pennsylvania should take a more positive role in the advancement and development of a broad program of continuing education through its educational institutions.

There should be established a committee or council on continuing education of the State Board of Education. One of its major functions should be to continuously examine and define, and recommend implementation of the unique and separate roles in continuing education of the public schools, the community colleges and the State Colleges. Another but closely related function would be to recommend ways in which the facilities and services of each of these could be pooled and shared to the mutual advantage of each. Representatives of the staffs of the Bureau of Continuing Education, the Bureau of Community Colleges and the Bureau of Universities and Colleges should be used as consultants to the committee or council on continuing education.

State and local programs of continuing education should be broadened to supplement their present emphasis on adult vocational education and basic elementary and secondary education of adults with stronger emphasis on adult civic and social education and education for the uses of adult leisure as defined and classified in this report.

The State should encourage and implement in-service education programs for continuing education administrators and teachers that will improve the adaptability of the educational institutions under the supervision of the Department of Public Instruction to new technologies and innovations of method and materials that are uniquely appropriate to adult learning.

State encouragement should be given to local school districts, community colleges and State colleges to develop small cadres of full-time teachers in continuing education programs as nuclei around which on-going and far-sighted programs can be built, and for whom the professional career of continuing education can become as attractive as any other teaching career.

Provision should be made for State reimbursement of two-thirds of the salary of any director of continuing education in public school districts, community college or State college, the payment by the State not to exceed $12,000. A similar provision should be made for one continuing educational counsellor in any locality or institution specified above, for reimbursement of one-half the counsellor's salary, the State payment not to exceed $7,500.00. Provision should be made for two or more school districts, community colleges or State colleges to employ a director or counsellor jointly.

To further implement the above recommendations the State should provide categorical financial aid to local school districts, community colleges and State colleges for the following types of continuing education not provided for in any other State and/or Federal funds and as defined in this report: (1) secondary school subjects that would qualify the student for a high school diploma or its equivalent: (2) subjects classified in this report under civic and social education of adults and under education for the uses of adult leisure.

The State funds for this categorical aid should be directed toward improving the scope and quality of the total program in any community or institution, rather than encouraging an occasional class or activity. Therefore, in order to qualify for reimbursement, the board of education or other administrative board would be required to appoint a continuing education planning committee of competent and widely representative adult citizens to: (1) develop a community plan for continuing education based upon a study of needs and resources of the community to be served and recommend the plan to the board: (2) evaluate the progress of the plan from time to time; and (3) recommend desirable revisions to the board from time to time. The plan should reflect an understanding of the committee of the resources and activities of other sponsors of continuing education in the total continuing education enterprise. Specialized consultant assistance from the Bureau of Vocational, Technical and Continuing Education should be available to the local continuing educational planning committee. The administrative budget of the bureau should contain a modest allowance for consultant services of specialists not on the bureau's staff.

The essential formula to be used to distribute these funds should be based upon the number of teachers employed for continuing education in any district or institution, rather than upon attendance or enrollment of students. A useful model for this type of formula is that employed by the State of Florida.

If such subsidies as are recommended in this report are legislated, the inclusion of adult education expenditures should be dropped from the basic subsidy calculation of any public school district or other institution qualifying.

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SECTION II--ECONOMIC TRENDS AND MANPOWER PROJECTIONS

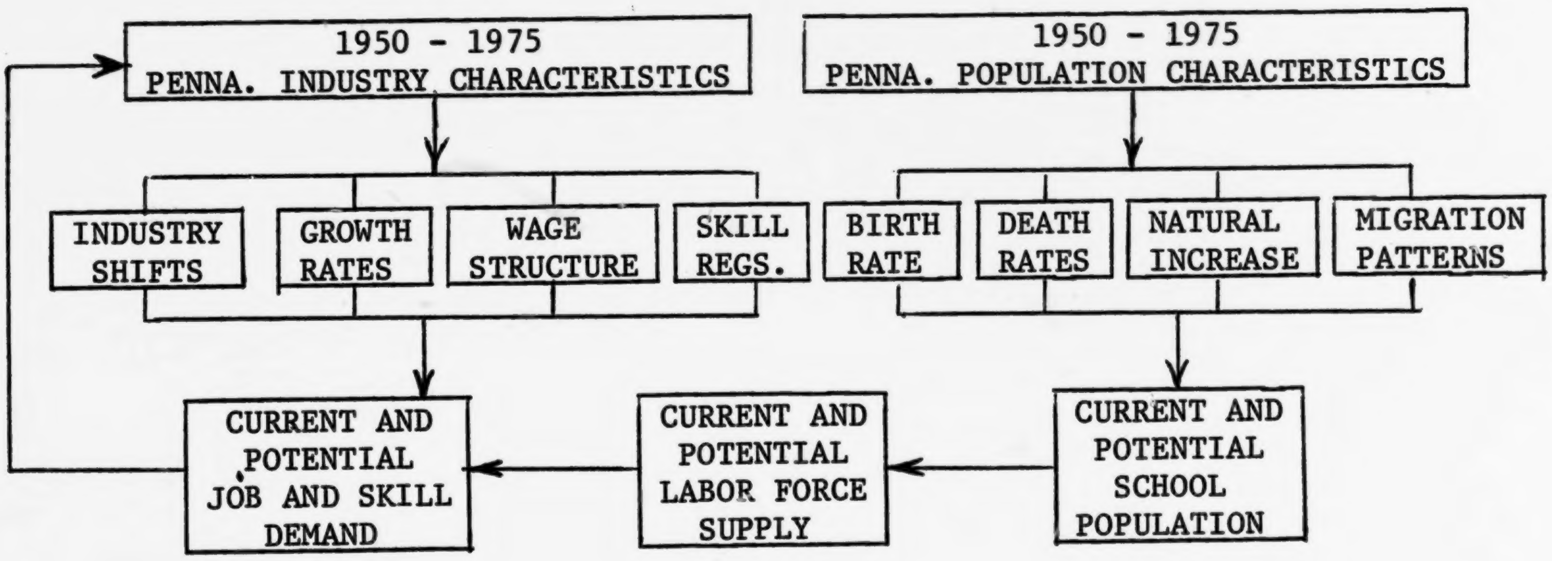
CHAPTER IV

THE COMPETITIVE POSTURE OF PENNSYLVANIA

PLAN AND SUMMARY CONCLUSIONS OF THE PENNSYLVANIA ECONOMIC ANALYSIS

In undertaking the task of studying the economy of Pennsylvania as an input to the overall study of vocational, technical and continuing education the major problem foreseen was to limit, select, and interpret the salient demographic and economic events in the State which would have the greatest relevance for occupational education planning. In broad outline, therefore, the approach taken was to develop an understanding of population and industry movements in the State as they affected and shaped the current labor force and its future development in terms of quantitative and qualitative employment potentials. Consequently, this study encompasses the investigations indicated in the following diagram:

MODEL OF LABOR FORCE SUPPLY AND DEMAND STUDY


1950 - 1975
PENNA. INDUSTRY CHARACTERISTICS
1950 - 1975
PENNA. POPULATION CHARACTERISTICS
INDUSTRY SHIFTS
GROWTH RATES
WAGE STRUCTURE
SKILL REQS.
BIRTH RATE
DEATH RATES
NATURAL INCREASE
MIGRATION PATTERNS
CURRENT AND POTENTIAL JOB AND SKILL DEMAND
CURRENT AND POTENTIAL LABOR FORCE SUPPLY
CURRENT AND POTENTIAL SCHOOL POPULATION

To accomplish the above, the objective has been to interrelate the above elements and show their dependence, one on the other.

To do so, a central approach was taken to describe the position of Pennsylvania and its subdivisions in regard to their ongoing competitions, both externally and internally, for increasing shares of population, industry and employment. This was utilized to provide the basis for useful comparisons as to the growth and direction of the economy of the State and within these directions the projected shape of the labor force, and consequently the opportunities for meaningful employment of the graduates of the State's education plant. The goal has been to formulate and develop, in a broad sense, necessary objectives to meet in order to improve the economic status of a State which seems to be losing out in its competitive drives for improved economic well being.

In order to perform this, the study has enunciated these principal tasks:

1. A study of the position of Pennsylvania in relation to those neighboring states which can compete for labor and industry. In respect to this there were compared population trends, employment trends and wage trends as indicators of the competitive status of the states.

2. A study of the internal geographical changes in regard to the movement of population and employment within the State to demonstrate the degree of internal competition.

3. A study of the shifting aggregates of employment to illustrate the competitive position of the different industries for labor.

From the above tasks, it has been possible to project some of the anticipated changes in employment demand in the State as a guide for the drafting and implementation of vocational education programs to meet the requirements for and of the future work force of the State.

SUMMARY CONCLUSIONS

On the basis of demographic and economic statistics through 1966 and 1967, and projections to 1975 and 1980, a number of general observations and conclusions can be drawn regarding the economic performance of the State. It must be understood that it is not the purpose of this economic study to analyze the data on an absolute basis, but to determine the economic trends in the State relative to other states, and also between regions within the State, i.e., to determine the competitive posture of Pennsylvania in regard to population age distribution, skilled workers, and industries.

In general, the study from this point-of-view indicates that although Pennsylvania is gradually upgrading its economic position after the declines of the late 50's and early 60's, it is still lagging in the competition for its share in the growth of the national economy. Although significant reversals have occurred, large portions of the State will continue to suffer relative depletion of skilled prime working population, lagging wage levels, and further deterioration of its competitive posture unless ongoing and massive efforts to upgrade the economic potentials of the affected regions are vigorously continued.

To support this overall conclusion the following summarizes the salient data presented in the report:

1. Pennsylvania is gradually losing its share of the national population growth.

2. In reference to the above, Pennsylvania is replacing its prime age working population 24-64 years of age at a much slower rate than the nation as a whole, or its adjoining competitive neighbors.

3. Contributing to the above is a steadily decreasing birth rate through 1970, among the lowest in the nation, and the largest out-migration rate of any of the large industrial states. By 1970, this situation should stabilize and population is projected to increase during the 1970 - 1980 decades.

4. As a consequence the State now ranks second from the bottom (excluding Washington, D.C.) in State rankings in the ratio of males to females.

5. Pennsylvania had a net out-migration of population between 1950 and 1966. Some counties experienced net in-migration while others lost population through out-migration. Between 1950 and 1966, ten out of the State's sixty-seven counties gained population through in-migration and accounted for more than 80 percent of the total in-migrants. Between 1960 and 1966 these counties also received 94.6 percent of the total State increase in population.

6. The major portion of the in-migration and population increases between 1950 and 1966 have been concentrated in three southeast counties - Bucks, Montgomery and Chester. During this period the counties around Pittsburgh have lost significant amounts of population through out-migration.

7. The inter-related effects of demographic downturn and State employment levels is evidenced by the continuous drop in employment growth. Between 1940 and 1950 Pennsylvania ranked 29th by increase in new jobs. Between 1950 and 1960 the State dropped to the 40th position. Non-agricultural employment growth between 1957 and 1967 dropped Pennsylvania to the 46th position. Although Pennsylvania outpaced both New York and West Virginia in manufacturing employment growth, it fell behind its other neighbors by a considerable margin. Correspondingly, the State's increases in non-manufacturing employment also fell behind its neighbors.

8. Although Pennsylvania showed increasing growth in manufacturing, non-manufacturing and per capita income from 1950 to 1967 the State failed to keep pace with the national growth pattern as well as similar growth patterns experienced by its neighboring States.

9. The general developments indicated above have been due in no small part to drastic declines in five major industries -- agriculture, railroad transportation, coal mining, textiles manufacturing and basic steel products. Among these industries more than 498,000 jobs had been eliminated in the State throughout the fifties and the early sixties.

10. Economic recovery since the unemployment peak of 1958 (annual average - 10.5 percent of the labor force) has been accomplished primarily by continued growth in non-manufacturing, the upturn in durable goods production since 1961, and the disappearance of 150,000 persons from the work force between 1958 and 1963.

11. The consequences of the above developments are that the increases in Pennsylvania employment since 1958 have been primarily due to a re-absorption of the State's unemployed male and possibly a shift from male to female employment.

12. Although unemployment presently is below the national level, much of this has been accomplished by a growth of labor intensive industries, such as the apparel industry, government employment and services which place greater emphasis on the services of females and on the whole generate lower wage levels than manufacturing trades. As projected to 1975 this trend will continue and further emphasize the continued growth of non-manufacturing industries over manufacturing, partially as a response to the need for staffing social, business and educational services, which are labor intensive, as against the mix of manufacturing industries in the State which are relatively slow growth in their projected need for manpower.

13. In terms of growth projections by the U. S. Department of Labor, it is expected that the State labor force will increase by 10.9 percent between 1970 and 1980, or slightly below the 11.2 percent of the 1960 - 1970 rate. Of this growth it is expected that 80.5 percent will be accounted for by males and females under 25 and females over 25. Males over 25 will only account for 20.5 percent. As compared with the national projections, younger workers of both sexes and older female workers will make up a greater proportion of the State labor force than they will of the national aggregate. Correspondingly male workers over 25 will demonstrate less growth in Pennsylvania than for the United States as a whole.

14. To meet the demands for labor as described over the next decade it is expected that between 1966 and 1975 over 2,139,000 persons between the ages of 14 and 24 will pass through varying levels of the educational system of whom 1,068,000 will be new entries, into the labor force. It will be characteristic of this group, as against the past, that although the total number of students will decline in the school system more of those who leave will possess high school diplomas and advanced degrees in increasing proportion.

15. As against this educational upgrading it is anticipated that the level of job opportunities will not match the requirements for work commensurate with academic achievement in that there will be a shortage of professional, technical and managerial jobs relative to post-high school achievers and a surplus of lower skilled operative service and laboring jobs for those without high school diplomas.

16. Paradoxically, although shortages of quality job opportunities are expected for the entry age population it is also expected that shortages of labor will occur along many occupational lines because of the lack of trained manpower. This is extremely significant in the light of the expected overproportional increase in the number of youths in the future labor force.

CONCLUSIONS

Economic Trends. The inter-related population/manpower/employment trends in Pennsylvania, discussed in this report, show the extent to which the State (at least up to 1966) experienced a decline in its major and long established industries. This resulted in the out-migration of many young and skilled workers to the more diversified industrial areas of the State (the southeast and the south central portions), and, of more concern to the other states. The situation in the declining industrial areas has been that of an influx of industries which require a less skilled work force, as evidenced by relatively low capital expenditures and lower wages per worker. Although there is significant growth of non-manufacturing industries in the State, it is constrained in these depressed areas by the lack of demand generated by the primary industries and by the lack of a significantly growing population in many areas.

The Educational Requirements for Economic Change. The relative lack of forward motion and competitive drive by the State is not to be conceived as a necessary adverse position at this point in time. Rather it can be viewed as an opportunity to further develop and implement comprehensive plans and programs for changing the direction uncomplicated by the short range and often chaotically opposed needs of a booming economy.

In terms of the required implementation it will become clear in this study that although vocational and technical education can serve different roles in different areas, its major task in Pennsylvania is in the support of the State's industrial development efforts to improve Pennsylvania's economic posture. It will do this by providing a labor force attractive to desirable industry in terms of skill and numbers available. Furthermore, it will improve the general well being of the individual by providing him with a skill.

While it might be argued that provision of training alone might tend to accelerate movement out to find jobs more in line with acquired skills, it can also be argued that the existence of good facilities is usually attractive to those firms that can use well trained proficient labor, which in the final analysis are the kinds of firms Pennsylvania wants.

As a prerequisite, however, to a significant fusion of the State's occupational training and industrial development efforts what is needed is the development and implementation of a system of combined on-going State and local planning which combines the utilization of all elements which can contribute to the identification of chronic economic problems and make available the resources for their solution.

The Requirements of State and Local Industrial Development Planning. Traditionally, planning to encourage industrial development on the State and local level has been conducted on the basis of relieving local unemployment of a chronic nature by encouraging new industries to locate in the affected areas. In doing so, the tendency has been to plug up holes on a stop-gap basis rather than to provide broad scale regional growth of a self-generating and self-restraining nature. This treatment of symptoms rather than causes has almost invariably resulted in the application of remedies long after economic deterioration has been well advanced. A significant example of this process is apparent in the mass unemployment which could have been foreseen as coming in the anthracite coal regions of the State. In this situation, where significant planning could have been instituted in advance of the increasing deterioration of the area, it instead suffered the largest population decline in the State as a result of a decade of economic downturn punctuated by the importation of low wage firms employing a predominately female labor force.

It would seem to be apparent from the recent history of the State that industrial development activities cannot be conducted on a piecemeal, short-term basis in response to long-range emergencies which now seems to be shaping up in the steel industry here. The requirement is for balanced regional planning carried on cooperatively at the State and local levels, relating needs to resources and the objectives and requirements of each region to each other and the national economy.

It is significant that Pennsylvania has recognized this by establishing the Pennsylvania Industrial Development Authority in its Department of Commerce, the function of which agency is to attract through its selective loan and subsidy policy and powers the type of firms and industries which are necessary to up-grade these areas of the State which are in economic decline or only marginally prosperous in today's economy. Due in no small part to this agency's activities, significant new employment has been brought into a number of depressed areas in the State as shown in Tables 45 and 46. However, the on-going trends of industry and population movement still pose a problem of maintaining an industrial balance in the State for the next decade.

TABLE 45

PENNSYLVANIA DEPARTMENT OF COMMERCE

NEW INDUSTRIAL PLANTS AND EXPANSION PROJECTS ANNOUNCED IN PENNSYLVANIA 1967 AND 1968

		1968		1967
New operations or branch plants in new or existing buildings		310		280
Plant expansions		351		372
TOTAL		661		652
Industries relocating within Pennsylvania to new or existing buildings		78		95
	No. Rptg.		No. Rptg.	
Employment added by projects reporting planned employment	(645)	44,519	(642)	42,626

TABLE 46

LOAN PROJECTS OF THE PENNSYLVANIA INDUSTRIAL DEVELOPMENT AUTHORITY

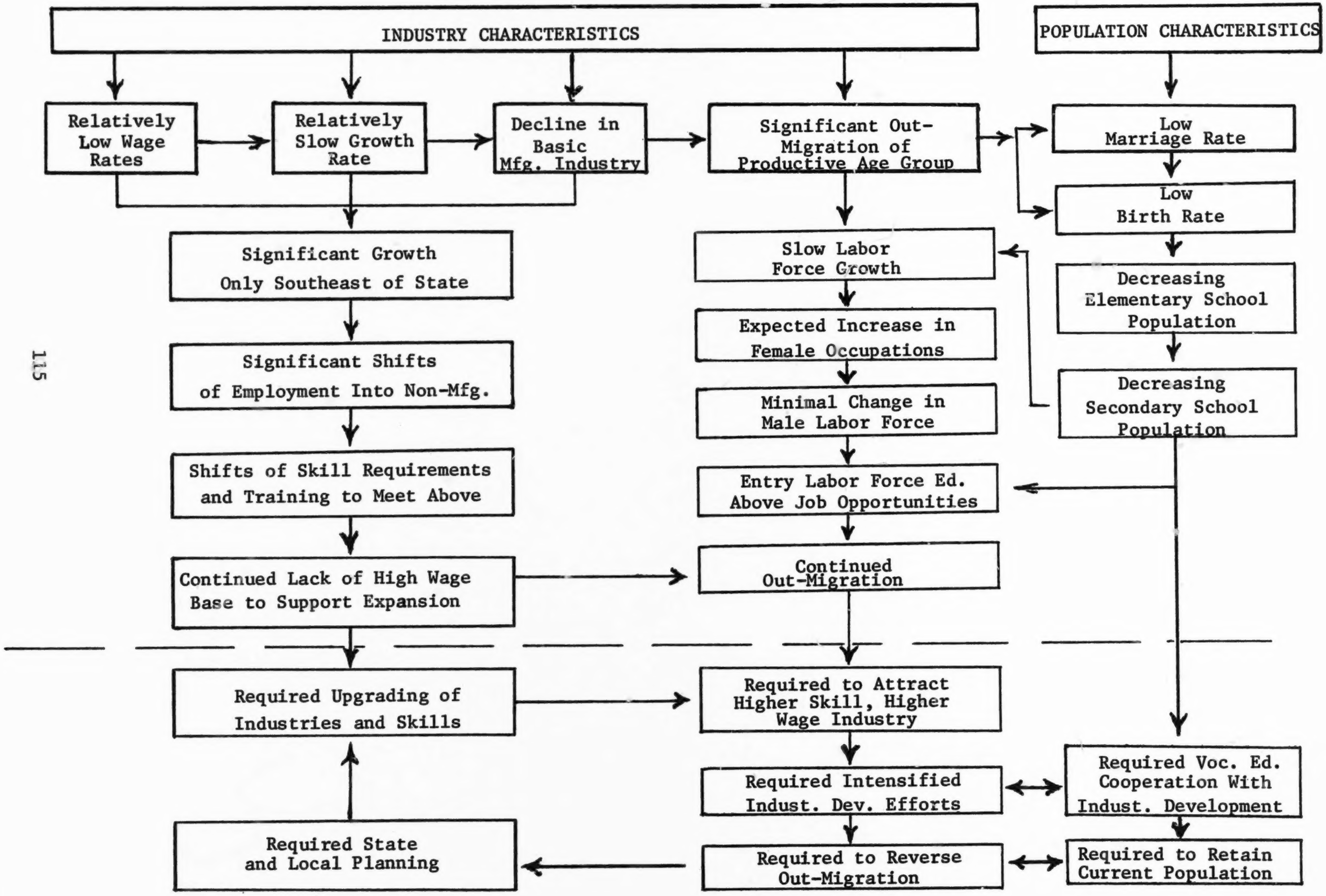
Year	Total No.	PIDA Loan	Project Cost	Planned Employment	Payroll
1968	142	$37,354,061	$98,991,483	16,518	$102,405,839
1967	74	$24,282,697	$65,000,775	11,934	$ 60,541,512

Important, if not essential, to the foregoing is the requirement that local enterprise be encouraged to help develop those industries which are organic to that already existing industry which is healthy, as against the importation of an unrelated firm into an area where the major reason for relocation is the savings generated from indiscriminate government loans and inducements. Beyond this, of course, efforts are required both by State and local authorities to up-grade the environmental attractiveness of the area as an inducement for outside management.

The major requirement for this is an effective educational system plus the upgrading of housing, health, and cultural, recreational facilities. As important is the availability of a trained labor force which is adaptable to the requirements of new industry through a responsive system of vocational and technical training facilities and progress. In this regard, experience in other States have shown this to be a most crucial factor in the attraction of new industry to an area.

The major requirement, then, is the implementation of mutually interesting local and State planning activities which have as their main objective the coordination of resources so that actions in an area do not render ineffective or contradictory planning in another part of the State. It is only through an effective fusion of effort at these levels that meaningful industrial planning can take place. A summary of Pennsylvania economic trends to 1975 is shown in the following diagram.

SUMMARY DIAGRAM OF PENNSYLVANIA ECONOMIC TRENDS TO 1975


INDUSTRY CHARACTERISTICS
POPULATION CHARACTERISTICS
Relatively Low Wage Rates
Relatively Slow Growth Rate
Decline in Basic Mfg. Industry
Significant Out-Migration of Productive Age Group
Low Marriage Rate
Low Birth Rate
Significant Growth Only Southeast of State
Slow Labor Force Growth
Decreasing Elementary School Population
Expected Increase in Female Occupations
Significant Shifts of Employment Into Non-Mfg.
Minimal Change in Male Labor Force
Decreasing Secondary School Population
Shifts of Skill Requirements and Training to Meet Above
Entry Labor Force Ed. Above Job Opportunities
Continued Lack of High Wage Base to Support Expansion
Continued Out-Migration
Required Upgrading of Industries and Skills
Required to Attract Higher Skill, Higher Wage Industry
Required Intensified Indust. Dev. Efforts
Required Voc. Ed. Cooperation With Indust. Development
Required State and Local Planning
Required to Reverse Out-Migration
Required to Retain Current Population

POPULATION TRENDS IN PENNSYLVANIA

The history of continued population growth in Pennsylvania over the decades has tended to obscure its directional changes which are characterized by a long term decline in population increase rates within the State, and as a share of the national growth. These trends, summarized in the table below indicate that the current decade represents a sharp downturn which cannot be explained by either the consequences of a serious depression or a large scale war.

TABLE 47

COMPARISON OF PENNSYLVANIA POPULATION GROWTH AND THE UNITED STATES (1900 - 1966)

Year	Pennsylvania Population (000's)	Pennsylvania Decade Rates	United States Population (000's)	United States Decade Rates	Percent Penna./U.S. Growth Rate
1900	6,302.1		76,094.0		
1910	7,665.1	+21.6	92,407.0	+21.4	101.0
1920	8,720.0	+13.8	106,466.0	+15.2	90.8
1930	9,631.4	+10.5	123,077.0	+15.6	67.3
1940	9,900.2	+ 2.8	132,594.0	+ 7.7	36.4
1950	10,498.0	+ 6.0	152,271.0	+14.8	40.5
1960	11,319.4	+ 7.8	180,684.0	+18.7	41.7
1966*	11,657.0(est)	+ 3.0	196,920.0(est)	+ 9.0	33.3

*Six-year estimate

From 1960 through 1980, the United States Census Bureau has projected differential rates of growth for Pennsylvania based on varying assumptions as to the decline in the birth rate and the extent of future migration. For the purpose of this study, it appears logical to assume on the basis of Pennsylvania's declining birth rates and migration that population increases over the next ten years will tend to conform to census estimates which are predicted on a moderate birth rate decline and a gradual equilibrium between in-migration and out-migration over the next 50 years.* However, on this assumption, the population of the State should reach the following levels by the end of the next decade as compared with to the United States in general.

TABLE 48

AGGREGATE POPULATION PROJECTIONS 1970 - 1980

Year	Penna. Population Estimates (000's)	Percent Change from 1960	U.S. Population Estimates (000's)	Percent Change from 1960
1970	11,991.0	+5.9	208,249.0	+16.1
1975	12,531.0	+10.7	225,123.0	+25.5
1980	13,201.0	+16.6	244,566.0	+36.4

As indicated above Pennsylvania can expect its population growth to remain at less than half the national rate through 1980. However, strong the probability is of a low growth rate continuing, the more important consequences for the State, from the standpoint of educational and economic policy and planning, will stem from changing distributions of strategic age groups. These are:

1. The 5-24 year age group, as representative of the current and future school population, new entries into the labor force and into higher education.

2. The 25-44 year age group, as representative of the most productive portion of the labor force, as well as the major consumer goods and tax revenue source.

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*Fertility and interstate migration assumptions used by the U.S. Bureau of Census may or may not accurately represent Pennsylvania's position since they are under constant revision.

The relative changes in these age groups have been tabulated below from 1960 to 1980 to indicate changes in school and labor force supply groups:

TABLE 49

POPULATION GROWTH IN PENNSYLVANIA BY AGE GROUP 1960 - 1980 (000's)

Age Group	1960 (000's)	1970 (000's)	1975 (000's)	1980 (000's)	Total Increase 1960 - 1980 (Actual)
Under 5	1,188	1,120	1,248	1,378	190,000
5-17*	2,627*	2,876*	2,867*	2,974*	347,000*
5-24	3,522	4,141	4,263	4,435	913,000
25-44	3,029	2,715	2,890	3,271	242,000
45-64	2,452	2,726	2,755	2,630	178,000
65 and over	1,129	1,289	1,375	1,487	358,000
TOTAL	11,320	11,991	12,531	13,201	1,881,000

*Not included in the totals

As evidenced above, all categories of population are expected to increase between 1960 and the terminal year, with the significant exception of the 25-44 year age group which will only pass its 1960 level between 1975 and 1980. The smaller size of this group reflects the low birth rate years of the depression and World War II. Nevertheless, if labor force demands were sufficiently high and jobs sufficiently attractive, a sizeable portion of this age group deficit would be replaced by in-migration. To illustrate this, a comparison of U.S., selected States and Pennsylvania population behavior for this age group is given in Table 50 to illustrate the divergence of the State from the national and neighboring industrial States.

It is apparent that Pennsylvania, in contrast to the nation, and the other States involved, will steadily lose potential working population. It will also lose its potential pre-retirement population to a greater extent than the others.

TABLE 50

POPULATION AGE GROUP REPLACEMENTS, PENNSYLVANIA AND SELECTED STATES, 1960-1980

Age Group	(1) United States	(2) Penna.	(3) New Jersey	(4) Maryland	(5) Delaware	(6) Ohio	(7) New York	(8) Illinois
5-24, 1960	59,485,000	3,522,000	1,824,000	1,041,000	146,000	3,187,000	4,964,000	3,140,000
Estmd. 25-44, 1980	61,481,000	3,271,000	2,156,000	1,176,000	168,000	3,313,000	5,504,000	3,268,000
Net Replacement	+1,996,000	- 251,000	+ 332,000	+ 135,000	+22,000	+ 126,000	+ 540,000	+ 128,000
Percent Change	+3.4	-7.1	+18.2	+13.0	+15.1	+4.0	+10.9	+4.1
25-44, 1960	46,900,000	3,029,000	1,716,000	880,000	127,000	2,588,000	4,548,000	2,674,000
Estmd. 45-64, 1980	43,223,000	2,630,000	1,714,000	828,000	118,000	2,283,000	4,223,000	2,372,000
Net Replacement	-3,677,000	- 399,000	- 2,000	-52,000	-9,000	- 305,000	- 325,000	- 302,000
Percent Change	-7.8	-13.2	- .01	- 5.9	- 7.1	-11.8	- 7.1	-11.3

Age Group	(9) United States	(10) Penna.	(11) New Jersey	(12) New York	(13) Ohio	(14) Illinois	(15) Del.	(16) Md.
45-64, 1960	36,058,000	2,452,000	1,324,000	3,892,000	1,896,000	2,163,000	83,000	587,000
Estmd. 65 & Over 1980	23,087,000	1,487,000	853,000	2,350,000	1,151,000	1,269,000	54,000	382,000
Net Replacement	-12,971,000	- 965,000	- 471,000	-1,542,000	- 745,000	- 894,000	-29,000	- 205,000
Percent Change	-36.0	-41.5	-35.6	-39.6	-39.3	-41.3	-34.9	-34.9

In terms of the change in projected school-age population differing rates of decline and growth will occur between the potential primary and secondary school populations through 1980, as follows:

TABLE 51

PROJECTED SCHOOL AGE POPULATION IN PENNSYLVANIA (1966 - 1980)

	Year	Elementary Potential 5-12		Year	High School Potential 13-17	College Potential and Labor Force Potential 18-24
Peak Year	1966	2,039,000		1966	799,000	N.A.
	1970	1,989,000		1970	864,000	1,265,000
	1973	1,949,000	Peak Year	1973	892,000	N.A.
Low Year	1975	1,945,000		1975	888,000	1,396,000
	1980	2,098,000	Low Year	1980	827,000	1,461,000

The behavior of the Pennsylvania population in the 5-24 age group is again typical as compared with the States previously considered:

TABLE 52

REPLACEMENT PROJECTIONS FOR U.S., PENNSYLVANIA AND SELECTED STATES

Ages	United States	Penna.	New York	New Jersey
Total under 5, 1960-1975	87,931,000	4,658,000	7,406,000	2,873,000
Totals +5-24, 1980	88,429,000	4,435,000	7,265,000	2,999,000
Net Replacement	+ 498,000	- 223,000	- 141,000	+ 126,000
Percent Difference	+ 0.6	- 4.8	- 1.9	+ 4.4

	Ohio	Ill.	Del.
Total under 5, 1960-1975	4,683,000	4,774,000	247,000
Totals +5-25, 1980	4,604,000	4,685,000	257,000
Net Replacement	- 79,000	- 89,000	+10,000
Percent Difference	- 1.7	- 1.9	+ 4.0

It therefore becomes evident that Pennsylvania, in contrast to its neighbors and other large industrial States, is failing to replace significant elements of its population. The relative rates can be viewed below in reference to the overall population change in the period under consideration.

TABLE 53

PERCENT REPLACEMENT OF POPULATION AGE GROUPS 1960 - 1980

	U.S.	Penna.	N.Y.	N.J.	Ohio	Ill.	Md.	Del.
Under 5 to 5-24	+ 0.6	- 4.8	- 1.9	+ 4.4	- 1.7	- 1.9	N.A.	+ 4.0
5-24 to 25-44	+ 3.4	- 7.1	+10.9	+23.7	+ 4.0	+ 4.1	+13.0	+15.1
25-44 to 45-64	- 7.8	-13.2	- 7.1	- 0.1	-11.8	-11.3	- 5.9	- 7.1
45-64 to 65, and Over	-36.0	-41.5	-39.6	-35.6	-39.3	-41.3	-34.9	-34.9
Percent Total Population Increase 1960-80	+36.4	+16.6	+29.1	+42.9	+32.1	+30.1	+50.8	+52.2

BIRTH RATES AND MIGRATION DATA

The projection of population change and replacement have pointed to significant disparities in the demographic behavior of Pennsylvania as compared with the nation and neighboring States. The lack of demographic vitality in the State can be traced to a number of effects of which the primary ones are to be described as the relationship between marriage rates, birth and death rates and out-migration. All contribute to a low rate of natural increase. The performance of Pennsylvania in the above respects can be illustrated below:

TABLE 54

COMPARATIVE VITAL STATISTICS, PENNSYLVANIA AND THE U.S.

Marriages per 1,000 Population

Year	U.S.	Penna.	Rank
1950	11.1	8.5	43
1960	8.5	6.3	48
1966	9.4	7.0	46

Births per 1,000 Population

Year	U.S.	Penna.	Rank
1950	24.1	21.2	45
1960	23.7	21.3	49
1966	18.5	17.0	46

Death per 1,000 Population

Year	U.S.	Penna.	Rank
1950	9.6	10.5	9
1960	9.5	10.7	6
1966	9.5	10.5	5

Interacting with and partially causal to the population movement has been a continuous out-migration from 1950 onwards. Between 1950 and 1960 it is estimated that Pennsylvania counties gained a total of 368,990 persons. During the same period 822,135 persons are estimated to have moved from their home counties. On balance, therefore it would appear that a net of 453,145 persons removed themselves from the State in the ten years. Between 1960 and 1966 an estimated net total of 342,000 persons also left the State. On an annual basis, it would appear that during the 60's approximately 57,000 were leaving the State on balance each year as against 45,300 each year in the 1950-60 period. The increasing rate of out-migration is of particular significance in terms of its role in holding down the State's population growth:

TABLE 55

OUT-MIGRATION AS A PERCENTAGE OF POPULATION INCREASE IN PENNSYLVANIA

Year	Total Birth	Total Death	Natural Increase	Net Out-Migration	Total Potential Growth	Percent Net Out-Migration To Total
1950-60	2,417,400	1,142,909	1,274,491	453,145	1,727,636	26.2
1960-66	1,396,000	773,000	623,000	342,000	965,000	35.4
TOTAL	3,813,400	1,915,909	1,897,491	795,145	2,692,636	29.5

Although the rate of out-migration seems to be increasing in this decade, intra-State movement and in-migration appears to be diminishing.

TABLE 56

IN-MIGRATION TO AND BETWEEN COUNTY MOVEMENT IN PENNSYLVANIA
(67 COUNTIES)

			Percent Out-Migration From State To:	
	In-Migration	Net Out-Migration	County In-Migration	County Out-Migration
1950-60	368,990	822,135	122.8	55.1
1960-66	103,200	445,200	331.4	76.8
	472,190	1,267,335	168.4	62.7

The changing characteristics of population movement indicate that a greater degree of urban fringe concentration is occurring particularly in the southeastern part of the State.

It is significant to note that only ten counties of the State's sixty-seven have had both continued population increases and in-migration during the period 1950-1966.

TABLE 57

TEN COUNTY POPULATION GROWTH

	Population 1950	Natural Increase	In-Migration	Population 1966
Bucks	144,600	77,700	132,700	355,000
Centre	65,900	17,800	9,300	93,000
Chester	159,100	42,400	52,000	253,500
Cumberland	94,500	24,900	19,900	139,300
Lehigh	198,200	33,600	8,200	240,000
Monroe	33,800	5,200	4,800	43,800
Montgomery	353,100	86,800	148,700	588,600
Pike	8,400	200	1,400	10,000
Snyder	22,900	4,200	2,100	29,200
Union	23,200	3,500	900	27,600
10 County Total	1,103,700	296,300	380,000	1,780,000
Total State	10,498,000	1,897,500	472,200	11,601,000
Percent	10.5	15.6	80.5	15.3

Of these ten, the three counties near Philadelphia received the bulk of the new population - Bucks, Montgomery and Chester. These have undoubtedly received a significant portion of the net total of 348,400 persons out-migrating from Philadelphia and the 195,676 net loss from the four anthracite counties of Carbon, Luzerne, Lackawanna and Schuylkill.

The direction and intensity of population movement can be clearly seen as establishing a feeder pattern for the State through which a growing concentration of population is occurring around the Philadelphia area, with secondary effects in the Cumberland County and Lehigh County areas.

TABLE 58

DIRECTION OF POPULATION CHANGE, PENNSYLVANIA (1950 - 1966)

	1950 - 1960	1960 - 1966
Total State Population Increase	+821,400	+281,000
10 County Share	463,400	212,900
Percent of Total	56.4	75.8
3 County Percent of Total	46.1	57.4
Total County Net In-Migration	369,000	103,200
10 County Share	282,400	97,600
Percent of Total	76.5	94.6
3 County Percent of Total	69.0	76.4

Compared with the developments in the East, the other major population area within the State, the four county area around Pittsburgh has experienced a similar movement out of the central city between 1950 and 1960 which became intensified by population movement out of the entire area from 1960 onwards.

TABLE 59

WESTERN PENNSYLVANIA POPULATION SHIFTS 1950 - 1966

	1950 - 1960	1960 - 1966
Population Change		
Pittsburgh	- 72,500	N.A.
Allegheny County	+113,400	-28,000
Beaver County	+ 31,800	- 4,400
Washington County	+ 7,600	- 4,800
Westmoreland County	+ 39,500	+ 7,000
Total 4 County Change	+192,300	-30,200
Migration		
Allegheny County	-83,500	-110,000
Beaver County	+ 2,400	- 17,900
Washington County	-16,500	- 13,900
Westmoreland County	+ 1,900	- 13,000
Total 4 County Change	-95,700	-154,800

From the foregoing, it would seem reasonable to conclude that significant changes are occurring in the movement of population within and out of the State between the current and the previous decade. As between 1950-60 and 1960-66, it appears that the rate of in-county migration is decreasing while out-of-State migration is exhibiting the reverse trend in that a larger proportion of leavers are moving out of the State rather than changing areas within Pennsylvania. The nature of this out-movement can be assumed from the data on replacement of population age groups as one of prime age workers, their wives and children.

PENNSYLVANIA EMPLOYMENT TRENDS - STATE AND NATIONAL COMPARISONS

The relatively low rate of population and labor force growth projected for Pennsylvania in this and the following decade should also be reflected in the employment growth patterns of most of the State's industries. The deceleration of employment is most evident when comparing the wartime growth generated between 1940 and 1950 and the State's performance in 1950 and 1960, as illustrated below.

TABLE 60

PERCENT CHANGE IN EMPLOYMENT AND STATE RANK BETWEEN PENNSYLVANIA AND SELECTED STATES - 1940 - 1960

	Percent Change in Employment		State Rank	
	1940 - 50	1950 - 60	1940 - 50	1950 - 60
U.S.	26.7	15.5	—	—
Pennsylvania	22.2	5.0	29	40
New York	20.0	11.2	33	27
New Jersey	27.3	20.0	20	15
Ohio	30.8	14.8	17	20
Illinois	24.6	10.0	22	31
Delaware	23.8	33.7	24	8
Maryland	34.5	27.5	12	11
West Virginia	21.2	-14.3	31	50

As between the two periods and the States listed, it would appear that with the exception of West Virginia, Pennsylvania has been the least successful in maintaining its growth position up to 1960. A continuation of this pattern appears evident at least from the end of the last decade until the present, as suggested by the following performance indicators of U. S. Department of Labor indices of non-agricultural employment growth.

TABLE 61

PERCENT OF EMPLOYMENT IN NON-AGRICULTURAL PAYROLL, 1967 (1957 - 59 = 100)

	Index	Percent Change From 1957 - 59 Base	State Rank
U.S.	125.7	25.7	—
Pennsylvania	111.8	11.8	46
New York	112.3	12.3	45
New Jersey	123.5	23.5	34
Ohio	115.9	15.9	43
Illinois	120.4	20.4	38
Delaware	129.4	29.4	18
Maryland	135.9	35.9	12
West Virginia	104.6	4.6	48

Excludes Alaska and Hawaii

As evidenced above, employment growth in each of the States covered has on the whole increased in the above period as compared with the 1950 - 60 decade. However, the share of these States, and particularly Pennsylvania, has decreased in relation to the national picture.

The decreasing share of Pennsylvania and its neighboring states is illustrated in the following regional comparisons:

TABLE 62

NON-AGRICULTURAL EMPLOYMENT GROWTH IN U.S. BY REGION (1957 - 1959 = 100)

Region	Employment Growth Index 1967	1960	1950	Amount Change 1950 - 60	1950 - 67
United States	125.7	103.3	86.1	+20.0	+46.0
New England	118.9	102.6	92.7	+10.7	+28.3
Middle Atlantic	114.0	101.0	92.3	+ 9.4	+23.5
East North Central	120.9	101.6	91.3	+11.3	+32.4
West North Central	124.2	103.1	88.7	+16.2	+40.0
South Atlantic	136.6	104.7	80.8	+29.6	+69.1
East South Central	132.2	103.3	84.1	+22.8	+57.2
West South Central	131.6	102.4	79.9	+28.2	+64.7
Mountain	135.0	108.2	73.7	+46.8	+83.2
Pacific	137.0	105.6	73.6	+43.5	+86.1

As evidenced above employment growth has been moving both west and south of the older New England and Middle Atlantic regions. This has been also significant for manufacturing employment as evidenced by the fact that Pennsylvania, with the third largest manufacturing work force in the Nation, ranked 43rd in growth rate (excluding Alaska and Hawaii) between 1957 - 59 and 1967, exceeding only New York, Massachusetts, Maryland, Wyoming and West Virginia. Comparisons between Pennsylvania and its neighboring states are as follows:

TABLE 63

MANUFACTURING EMPLOYMENT
U.S. PENNSYLVANIA AND SELECTED STATES
(1957-59 = 100)

	Employment Growth Index			Percent Change	
	1967 Level	1960 Level	1950 Level	1950-60	1950-67
U.S.	117.1	101.2	91.8	+10.2	+27.6
Pennsylvania	107.6	99.5	102.3	- 2.7	+ 5.2
New York	98.1	97.4	99.4	- 2.0	- 1.1
New Jersey	109.0	100.6	94.1	+ 6.9	+15.8
Ohio	109.6	99.0	95.4	+ 3.8	+14.9
Illinois	113.2	98.4	97.4	+ 1.0	+16.2
Delaware	120.3	99.5	86.8	+14.6	+38.6
Maryland	106.9	98.4	88.2	+11.6	+21.2
West Virginia	104.2	97.9	103.2	- 5.1	+ 1.0
Wyoming	97.2	116.7	88.9	+31.2	-16.7

In respect to the position of Pennsylvania and its region, manufacturing employment growth has also accelerated a west and south movement.

TABLE 64

INDEX OF EMPLOYMENT ON MANUFACTURING PAYROLLS,
U.S. AND REGIONS
(1957-59 = 100)

	1967	1960	1950	1950-60	1950-1967
U.S.	117.1	101.2	91.8	+10.2	+27.6
New England	108.5	100.8	102.0	- 1.2	+ 6.4
Middle Atlantic	103.5	98.8	99.4	- 0.6	+ 4.1
East North Central	113.3	99.5	100.9	- 1.4	+12.3
West North Central	124.2	101.4	88.5	+14.6	+40.3
South Atlantic	130.5	104.1	85.8	+21.1	+52.1
East South Central	137.9	102.9	84.4	+21.9	+63.4
West South Central	135.7	100.6	79.7	+26.2	+70.3
Mountain	136.1	111.9	71.5	+56.5	+90.3
Pacific	124.3	102.6	65.8	+55.9	+88.9

Significant differences in non-manufacturing, non-agricultural employment are also apparent in comparing Pennsylvania and its neighbors.

TABLE 65

EMPLOYMENT GROWTH FOR NON-MANUFACTURING INDUSTRIES (EXCLUDING MINING) U.S. PENNSYLVANIA AND SELECTED STATES (1950-67)

	Non-Mfg. 1967	Employment 1950	Percent Change 1950-67	Rank	Population Growth 1950-66	Rank
U.S.	45,980.0	29,080.0	+58.1	-	+29.4	-
Pennsylvania	2,568.6	1,986.2	+29.3	7	+19.3	6
New York	4,962.6	3,650.6	+35.9	6	+23.1	5
New Jersey	1,529.6	896.4	+70.6	3	+42.7	3
Ohio	2,182.1	1,514.0	+44.1	4	+29.7	4
Illinois	2,757.2	1,916.8	+43.8	5	+23.1	5
Delaware	125.0	69.2	+80.6	2	+61.0	1
Maryland	899.2	48.6	+87.1	1	+54.2	2
West Virginia	322.9	270.1	+19.5	8	-10.3	7

WAGE AND INCOME DIFFERNTIALS - PENNSYLVANIA AND SELECTED STATES

The evidence of low earnings for manufacturing employees in Pennsylvania is associated with an "unfavorable" industrial mix which depresses average wage levels below other major manufacturing states. The local emphasis on labor intensive, consumer nondurables has meant that earnings of the typical production worker in Pennsylvania will be less than those of his counterpart in most other industrialized states and manufacturing centers in the United States. Closely related is an "unfavorable" occupational mix comprising more of the lower-and less of the higher-skilled occupations than elsewhere.

TABLE 66

GROSS EARNINGS OF PRODUCTION WORKERS - PENNSYLVANIA AND SELECTED STATES (1950-1967)

	1967		1960		1950	
	Weekly	Hourly	Weekly	Hourly	Weekly	Hourly
U.S.	$114.90	$2.83	$ 89.72	$2.26	$58.32	$1.44
Pennsylvania	112.52	2.82	89.86	2.31	56.77	1.43
New York	114.44	2.89	89.61	2.31	59.55	1.52
New Jersey	118.96	2.93	93.93	2.37	61.65	1.51
Ohio	132.48	3.19	104.13	2.60	57.10	N.A.
Illinois	125.04	3.07	97.70	2.45	62.69	1.53
Delaware	117.71	2.92	91.01	2.31	58.30	1.42
Maryland	114.21	2.82	90.63	2.26	55.46	1.36

TABLE 66 (Cont'd.)

	1967		1960		1950	
	Weekly	Hourly	Weekly	Hourly	Weekly	Hourly
West Virginia	$116.40	$2.91	$ 93.27	$2.41	N.A.	N.A.
Average All States (Exc. Pa.)	$119.88		$ 94.33		$59.13	
Pennsylvania	112.52		89.86		56.77	
Difference	$ 7.36		$ 4.47		$ 2.36	

Measured in relative terms, per capita personal income disparities between Pennsylvania and nearby states have been reduced; yet, the actual dollar differences have widened slightly, as shown by the comparison below:

TABLE 67

PER CAPITA PERSONAL INCOME - PENNSYLVANIA AND SELECTED STATES (1950-1966)

	1950	1960	1966
Pennsylvania	$2,072	$2,429	$2,973
New York	2,519	2,975	3,487
New Jersey	2,466	2,934	3,445
Ohio	2,179	2,529	3,073
Illinois	2,455	2,871	3,552
Maryland	2,154	2,539	3,203
Delaware	2,866	2,988	3,537
West Virginia	1,432	1,726	2,195
7 State Average (Exc. Pa.)	$2,296	$2,652	$3,213
Pennsylvania	2,072	2,429	2,973
Difference	$ 224	$ 223	$ 240
Pennsylvania as a percentage of the 7-State average	90.2	91.6	92.5

TABLE 68

EARNINGS OF PRODUCTION WORKERS ON MANUFACTURING PAYROLLS, BY MAJOR INDUSTRIAL AREA, OCTOBER 1968

Area	Average Weekly Earnings	Area	Average Weekly Earnings
Flint	$197	Denver	$133
Detroit	174	*Erie	133
Dayton	167	New Britan-Bristol	132
Akron	164	New Haven	131
Toledo	164	Kansas City	130
Wilmington	157	*Philadelphia	130
San Francisco-Oakland	154	Wheeling-Steubenville	129
Seattle-Everett	153	New Orleans	128
Cleveland	150	Boston	127
San Diego	150	Binghamton	127
Buffalo	148	Baltimore	127
Youngstown-Warren	147	Birmingham	126
Grand Rapids	145	Atlanta	125
Hartford	144	Worcester	124
Rochester	144	New York-N.E. New Jersey	124
Milwaukee	143	Waterbury	122
Indianapolis	142	Springfield-Holyoke	119
Peoria	142	Utica-Rome	119
St. Louis	141	*Allentown-Bethlehem	117
Louisville	141	Dallas	116
Los Angeles-Long Beach	140	*Johnstown	116
Houston	140	Memphis	115
Minneapolis-St. Paul	139	*Reading	115
Chicago	139	*York	113
Bridgeport	138	Chattanooga	110
Canton	138	*Harrisburg	110
Wichita	137	*Lancaster	110
Columbus	137	Portland	104
Cincinnati	136	Providence-Pawtucket	104
Syracuse	136	*Altoona	102
*Pittsburgh	135	*Scranton	95
Fort Worth	134	*Wilkes Barre-Hazleton	87
Albany-Schenectedy-Troy	134		

* Pennsylvania areas

Pennsylvania Employment Changes by Industrial Components

Employment in Pennsylvania since 1945 has experienced the effects of long-term trends which have corresponded to national employment changes and geographical shifts but have been accentuated in the State because of its over-investment in the industries in which these changes occurred. These trends and industries in Pennsylvania are characterized by:

1) the decline in farm employment
2) the decline in coal mining employment
3) the decline in railroad employment
4) the decline in basic steel employment
5) the decline in textile employment

Changes in the above industries can be noted in the table below for the twenty year period 1947-1967.

TABLE 69

PENNSYLVANIA INDUSTRIES REPRESENTING MAJOR DECLINES
IN EMPLOYMENT 1947-1967
EMPLOYMENT IN: (000's)

Year	Agriculture	Railroad Transportation	Anthracite	Bituminous	Textiles	Basic Steel Products
1947	182.3 (1950)	152.8	79.4	106.4	140.8	240.2 (1953)
1967	85.5	57.1	6.9	23.9	67.0	193.4
Diffs.	-96.8	-95.7	-72.5	-82.5	-73.8	-46.8
Percent Change 1947/1967	-53.1	-62.6	-91.3	-77.5	-52.1	-19.5

Within the above period net losses in the non-agricultural industries represented above amounted to more than 400,000 jobs, or approximately 11.0 percent of the total 1947 non-agricultural employment. In the twenty years following the initial date, other non-agricultural employment in the State, however, grew by 496,000 new jobs. To accomplish this shift the State, however, has operated until recently with an average unemployment rate which has been, until recently, well over the national average.

TABLE 70

AVERAGE ANNUAL UNEMPLOYMENT RATE-U.S. AND PENNSYLVANIA
(SELECTED YEARS)

	Unadj. U.S.	Penna.	Percent Penna./U.S.	Total Unemployment Penna.(000's)	Total * Work Force (000's)
1950	5.3	7.0	132.1	319.5	4593.5
1955	4.4	7.4	168.2	345.8	4683.4
1958	6.8	10.5	154.4	498.2	4756.5
1960	5.5	8.0	145.5	375.4	4684.5
1961	6.7	9.2	137.3	427.1	4659.1
1962	5.5	7.8	141.8	363.7	4633.9
1963	5.7	7.3	128.1	332.9	4589.2
1964	5.2	6.0	115.4	275.7	4606.7
1965	4.5	4.4	97.8	205.9	4657.9
1966	3.8	3.4	89.5	163.3	4760.8
1967	3.8	3.4	89.5	165.4	4846.3
1968	3.6	3.2	88.9	155.6	4902.4
1969 (March)	3.5	3.1	88.6	149.0	4883.1

* Includes those involved in labor-management disputes.

As evidenced by the above figures, Pennsylvania unemployment levels, consistently falling since the 1958 high point, bettered the national averages after 1964. This resulted from the State's turnaround in durable goods manufacturing after 1961 and a continuous growth in non-manufacturing employment, particularly in the local and State government and the services sectors. In addition to these developments it would appear that a significant factor in reducing the unemployment level was the withdrawal of approximately 150,000 persons from the labor force between 1958 and 1963.

The relevant changes in the labor force by industrial component from 1950, measuring the relative level of employment performance in the State to the current period, is illustrated below:

TABLE 71

CHANGES IN PENNSYLVANIA WORK FORCE
BY MAJOR COMPONENTS (1950-1966)
(000)

	Employment High Point Before 1958	Turning Point	Employment 1966	To Turning Point	From Turning Point
Total Employment	4,487.4(1953)	4,229.0(1961)	4,625.4	-258.4	+396.4
Agriculture	182.3(1950)	-	85.5	-	- 96.8
Mining	176.5(1950)	-	42.4	-	-134.1

TABLE 71 (Cont'd.)

	Employment High Point Before 1958	Turning Point	Employment 1966	To Turning Point	From Turning Point
Manufacturing	1,648.0(1953)	1,378.8(1961)	1,555.8	-269.2	+177.0
Durable Goods	993.0(1953)	778.2(1961)	928.3	-214.8	+150.1
Non-Durable Goods	652.3(1951)	596.1(1958)	627.8	- 56.2	+ 31.7
Construction	181.7(1952)	147.7(1961)	179.4	- 34.0	+ 31.7
Transportation	253.7(1951)	169.3(1964)	174.0	- 84.4	+ 4.7
Public Utilities	99.8(1957)	89.8(1964)	92.9	- 10.0	+ 3.1
Wholesale & Retail Trade	701.1(1957)	681.2(1963)	747.1	- 19.9	+ 65.9
Finance, Insurance & Real Estate	121.5(1950)	-	165.5	-	+ 44.0
Services & Miscellaneous	388.0(1950)	-	574.7	-	+186.7
Government	338.7(1950)	-	537.5	-	+198.8
Federal	151.7(1952)	133.2(1961)	148.2	- 18.5	+ 15.0
Local-State	230.1(1950)	224.1(1951)	418.4	- 6.0	+194.3
Self-Employed, Unpaid Family Workers, & Domestics	458.8(1958)	-	470.6	-	+ 11.8
Unemployment		498.2(1958)	163.3		+334.9
Total Work Force	4,752.3(1958)	4,602.2(1963)	4,788.7	-150.1	+186.5

From the data above it can be seen that the State's work force reached its highest peak prior to 1966 by 1958. This, however, was also accompanied by the highest unemployment level in the decade. The subsequent reversal in the job level did not occur until after 1961, during which period it can be assumed that out-migration from the State was particularly heavy. It must be noted that after the 1961-1963 major turning points, a relatively quick recovery occurred, exceeding the loss of employment prior to the early 1960's by a net of 138,000 new jobs.

As developed by the Economic Information Survey sponsored by the Department of Defense and the NASA measurement of employment in 453 major defense contractor plants revealed the following as to the status of Pennsylvania and neighboring states:

TABLE 72

DEFENSE GENERATED EMPLOYMENT, SELECTED YEARS, UNITED STATES, PENNSYLVANIA, AND SELECTED STATES (000's)

	Defense Employment		Defense Depending Ratio		Percent of Total Subcontract Value 1966		Percent of Total Prime Contract Employment Dec. 1966	
	June,1965	June,1967	June,1965	June,1967		State Rank		State Rank
U.S.	2,055.6	2,958.8	2.7	3.6	100.0		100.0	
Penna.	108.4	155.8	2.3	3.2	5.0	6	5.0	4
New York	132.2	170.4	1.7	2.1	11.3	2	7.1	3
New Jersey	66.9	94.9	2.4	3.3	5.3	5	3.3	10
Ohio	81.7	107.4	2.0	2.5	5.5	4	4.0	8
Illinois	48.7	88.4	1.0	1.8	3.3	8	3.4	9
Delaware	2.0	3.0	.9	1.3	.2	35	.1	49
Maryland	70.7	94.1	5.6	6.9	2.4	12	2.7	12
West Virginia	4.9	9.2	.8	1.5	.1	42	.5	35

Although Pennsylvania has acquired a considerable share of the national defense employment, it would seem that a considerable part of the employment generated has gone into the civilian staffing of DOD installations in the States:

TABLE 73

DEFENSE EMPLOYMENT MIX

	June 1964	June 1967
Total Defense Generated Employment	108,400	155,800
In Plants	42,000	80,800
In Installations, Civilians	50,800	60,500
In Installations, Military	15,600	14,500

Significantly, in the three years measured above, the increase of 38,800 defense plant workers represented 31.0 percent of the net new jobs in manufacturing. By inference, it may be surmised that if most of this manufacturing employment has been generated since the intensification of the Vietnamese conflict then this contribution to the State's net manufacturing growth since the 1961 low point amounted to 22 percent of the increase.

The relatively quick upswing of employment since the low points of the late fifties and early sixties was accomplished without any significant addition to the total labor force registered in 1958. Previously, it would appear that the State has been able to absorb the effects of the employment declines in agriculture, mining, and textile and redistribute them in non-manufacturing industries and in durable goods manufacture.

THE COMPETITIVE STATUS OF MANUFACTURING IN PENNSYLVANIA STATE AND NATIONAL COMPARISON

As indicated previously, the manufacturing establishment of the State has exhibited large cyclical swings in employment which have served to intensify the effects of the declining agriculture, coal and transportation industries in Pennsylvania. Although the manufacturing workforce has reacted from the low levels of employment in the late fifties and early sixties, the current status of that work force indicates that it is falling behind in terms of its position compared with the country as a whole. In order to illustrate this, the following indicators are presented in the table below:

TABLE 74

COMPARISON OF U.S. AND PENNSYLVANIA MANUFACTURING INDICATORS

Value Added Per Production Worker, 1966	$18,176	$15,790	-$2,386.00
Value Added for Dollar of Wages, 1966	3.21	2.89	- .32
Wages for production worker, annual Average, 1966	5,668	5,591	- 77.00
Capital Expenditure per production Worker, 1966	1,465	1,202	- 263.00
Wages per non-production worker, 1966	8,960	8,530	- 430.00
Value of Production for dollar of capital expenditure, 1958-1966 Average	34.45	33.01	- 1.44
Capital expenditures per employee, average 1958-1966	65,300	58,200	- 7,100.00

In terms of the above comparison, it would appear that on the whole the Pennsylvania industry is neither as capitalized or as efficient as U.S. manufacturing on the average. It is significant to note that per dollar of wages the Pennsylvania worker produces less return on the product. This condition is reflected in the fact that the capital resources available to him are less than that furnished to industry in general. It is also noteworthy that although production worker wages are near the U.S. average there is a decided difference in the wages paid to other categories of workers--presumably professional, clerical, technical, and maintenance personnel. However, the viability of manufacturing in the State as an area for a certain type of investment can be noted in the fact that the return in value of production per dollar of capital expenditures is extremely close to the U.S. average.

The implications of the above can be stated as follows:

1. Capital intensity in State manufacturing industry tends to be low; consequently lower skill requirements for workers should reflect this with a lower demand for workers with technologically advanced skills.

2. The State should tend to be less attractive as an employer of professional and clerical and technical help, with more emphasis placed on the requirement for production type labor.

3. The return on capital expenditure tends to follow the national average thus emphasizing the current attractiveness of the State for less capital intensive industries.

It is significant to note that the primary metal industries of Pennsylvania, notably iron and steel manufacturing, accounted for 28.7 per cent of the capital expenditures for manufacturing in the State in 1966, as against 13.7 per cent in the national economy. In the same year this industry in Pennsylvania employed 16 per cent of the manufacturing work force in the State. It therefore follows that capital expenditures per worker would tend to fall even lower in the remainder of manufacturing industries in the State. For 1966, therefore it can be calculated that without the capital expenditure input of the primary metal industries the average per worker expenditure in Pennsylvania was $1,029, as against the $1,202 average for all manufacturing industries.

The significance of the above is that although the metal industry has maintained a well paid work force in the State it is extremely capital rather than worker intensive and remains static in terms of new employment. Therefore in order to maintain its work force large expenditures for building and equipment are necessary. Evidence is that this is not being maintained in Pennsylvania.

In 1962 Pennsylvania's initial product industries invested $227.8 million in plant and equipment compared with $884.7 million in the United States as a whole. By 1966 Pennsylvania's investment increased by 74 per cent while the Nation as a whole increased by 211 per cent. Whereas the state recorded 25.7% of the Nation's total capital investment in metal products in 1962, by 1966 the State accounted for only 14.9% of the total.

Should this trend continue, cumulative deterioration in much of the direct and indirect employment will take place such as occurred in the coal industry. As a safeguard alternate employment services should be generated within the State's steel centers in the near future.

REGIONAL CHANGES IN THE SUPPLY OF LABOR IN PENNSYLVANIA 1950-1966

The major concentration of new population in Pennsylvania, as pointed out in a previous section, has been primarily confined to the relatively few counties of the State's southeast circumscribed by a radius of approximately 100 miles of its Philadelphia Center; with Bucks, Montgomery, Chester, Lehigh and Cumberland Counties representing the heaviest conters of population growth. Correlated with this growth pattern are the parallel trends in employment growth. To illustrate this the following table reflects the geographic changes between 1950 and 1966 of the work force and a total employment distribution by the State's labor market areas. From the data presented it can be seen that ten of the 14 areas shown here increased their employment at a faster rate than their work forces, reflecting substantial decreases in unemployment over recent years. Conversely, the five labor market areas which have registered work force losses, have reflected a slower rate of employment loss, again reflecting a drop in unemployment levels which is indicative of continued outmigration of surplus workers.

The changes indicated in Table 75 indicate that the bulk of employment growth in the period under consideration has occurred in those six of the labor market areas listed which correspond to the population growth centers of the State.

TABLE 75

PENNSYLVANIA WORK FORCE AND EMPLOYMENT CHANGES, BY MAJOR LABOR MARKET AREAS, 1950-1966

	Work Force (000's)			Employment (000's)		
	1966	1950	Change	1966	1950	Change
ABE*	204.2	179.9	+ 24.3	200.6	172.8	+ 27.8
Altoona	53.8	53.6	+ .2	50.2	48.4	+ 1.8
Erie	105.7	100.6	+ 3.1	102.4	95.8	+ 6.6
Harrisburg	180.5	151.4	+ 29.1	176.1	146.7	+ 29.4
Johnstown	90.7	104.5	- 13.8	86.3	96.8	- 10.5
Lancaster	134.0	107.1	+ 26.9	131.9	103.5	+ 28.4
Philadelphia*	1,696.2	1,455.3	+240.9	1,643.4	1,368.4	+275.0
Pittsburgh	933.9	930.4	+ 3.5	904.1	865.9	+ 38.2
Pottsville	60.1	72.7	- 12.6	56.5	65.3	- 8.8
Reading	133.1	121.2	+ 11.9	130.6	115.0	+ 15.6
Scranton	95.6	109.2	- 13.6	90.7	98.5	- 7.8
Uniontown -- Connellsville	40.8	52.1	- 11.3	37.7	47.0	- 9.3
Wilkes-Barre -- Hazleton	135.4	161.2	- 25.8	128.6	146.7	- 18.1
York	138.2	110.9	+ 27.3	135.1	106.6	+ 28.5
Rest of State**	760.6	862.6	-102.0	717.6	775.8	- 58.2
Total State	4,760.8	4,572.7	+188.1 (net)	4,591.8	4,253.2	+338.6 (net)

*Does not include New Jersey portion of area

**Includes Williamsport

These cities:

Allentown-Bethlehem-Easton

Harrisburg

Lancaster

Philadelphia

Reading

York

representing about one-half of the State's total employment in 1950, accounted for all and more of the total net increase in Statewide employment between 1950 and 1966. Significantly, the Philadelphia labor market area alone, (excluding the New Jersey portion) which accounted for close to one-third of the State's employment in 1950, registered more than four-fifths of the net State increase for the 16 years under consideration.

PROJECTED GROWTH AND DEMOGRAPHIC CHARACTERISTICS OF THE PENNSYLVANIA LABOR FORCE

As projected by the United States Bureau of the Census, the growth of the Pennsylvania labor force for the remainder of this decade and the one following will continue at a slower rate than that of the national labor force and selected neighboring states. The relative changes in the number of persons projected as constituting the available labor supply are indicated in the following comparisons by age group and area for the periods 1960-70 and 1970-80:

TABLE 76

COMPARISON OF LABOR FORCE GROWTH, UNITED STATES
PENNSYLVANIA AND SELECTED STATES (1960-1980)

	United States (000's)				Pennsylvania (000's)			
	Total	14-24	25-54	55 and over	Total	14-24	25-54	55 and over
1960	69,887	12,009	45,573	12,295	4,420	680	2,931	810
1970	85,257	19,934	50,472	14,852	4,915	1,010	2,962	943
1980	100,670	23,652	60,062	17,406	5,449	1,139	3,256	1,053
Percent Change								
1960-70	22.0	66.0	10.7	20.8	11.2	48.5	1.1	16.4
1970-80	18.1	18.7	19.0	17.2	10.9	12.8	9.9	11.7
	Ohio (000's)				Illinois (000's)			
1960	3,724	621	2,446	656	4,125	670	2,664	789
1970	4,463	1,022	2,666	773	4,710	1,062	2,717	930
1980	5,276	1,212	3,154	909	5,476	1,306	3,137	1,032
	19.8	64.6	9.0	17.8	14.2	58.5	2.0	17.9
	18.2	18.6	18.3	17.6	16.3	23.0	15.5	11.0

TABLE 76 (Cont'd)

	New York (000's)				New Jersey (000's)			
	Total	14-24	25-54	55 and over	Total	14-24	25-54	55 and over
1960	6,999	1,012	4,556	1,431	2,509	367	1,690	451
1970	8,109	1,561	4,726	1,676	3,062	610	1,876	575
1980	8,970	1,790	5,374	1,806	3,577	748	2,136	693
Percent Change								
1960-1970	16.1	54.2	3.7	17.1	22.0	66.2	11.0	27.5
1970-1980	10.4	14.7	13.7	7.8	16.8	22.6	13.9	20.5
	Delaware (000's)				Maryland (000's)			
1960	178	28	121	28	1,242	209	845	189
1970	224	52	136	37	1,596	372	969	250
1980	275	66	163	46	1,922	449	1,151	322
Percent Change								
1960-1970	26.0	85.7	12.4	32.1	28.5	78.0	14.7	35.4
1970-1980	22.7	26.9	19.9	24.3	20.4	20.7	18.8	25.8
	West Virginia (000's)							
1960	588	91	394	104				
1970	671	142	409	120				
1980	731	144	459	128				
Percent Change								
1960-1970	14.1	56.0	3.4	15.4				
1970-1980	8.9	1.0	12.2	6.7				

Analysis of the components of labor force changes by age, sex and race indicate that the largest percentage increases in the State labor force will occur in the male and female non-white group, particularly in the age group between 14 and 24 years of age, and in the 55 year and over female age group.

TABLE 77

PROJECTED PENNSYLVANIA LABOR FORCE GROWTH BY AGE, SEX AND RACE (1960-1980)

Age Group	Labor Force in (000's)		Percent Change 1960-1970, 1970-1980									
			Total		Male, White		Males,Non-Whites		Females,White		Females,Non-White	
	1960	1980	1960/70	1970/80	1960/70	1970/80	1960/70	1970/80	1960/70	1970/80	1960/70	1970/80
14-24	680	1,139	48.5	12.8	39.0	11.1	80.1	41.2	49.8	7.6	93.4	42.2
25-55	2,931	3,256	1.1	9.9	-3.8	9.1	6.7	22.4	9.3	8.3	19.4	20.6
55 and Over	810	1,053	16.4	11.7	6.0	3.7	9.5	18.8	39.8	23.9	46.3	31.9
TOTAL	4,420	5,449	11.2	10.9	4.2	8.4	17.9	26.2	22.9	11.1	35.4	27.4

For the period under consideration the relative percent share of the total labor force growth of each of the groups classified above is detailed in the following table in relation to its representation in the 1960 labor force:

TABLE 78

PERCENT SHARE OF PENNSYLVANIA LABOR FORCE GROWTH 1960-1980

Age	Labor Force 1960 (000's) Increase 1960-1980 (000's)	Total %	Males, White %	Males, Non-White %	Females, White %	Females, Non-White %
14-24	680/+459	15.4/44.6	8.3/20.7	0.7/4.5	5.9/15.6	0.5/3.8
25-54	2,931/+325	66.3/31/6	42.9/ 9.1	3.1/4.1	18.2/14.4	2.1/4.0
55 and over	810/+243	18.3/23.8	12.1/ 5.2	0.8/1.1	5.0/15.8	0.4/1.7
Total	4,420/+1,029	100.0/100.0	63.3/35.2	4.5/9.5	29.1/45.9	3.1/9.4

As indicated above, the 14-24 year old group which represented 15.4 percent of the 1960 State labor force will account for a 44.6 percent share of the projected total growth to 1980. Along another dimension, females excluding those in the 14-24 year old age group will account for another 35.9 percent of the projected total.

Both the group under 25, male and female, and females 25 and over will therefore account for an 80.5 percent share of the 20 year increase in the labor force. Males, over 25 years of age, although constituting 58.9 percent of the 1960 labor force will account for only 20.5 of the projected growth. For the United States as a whole, it is expected that the 14-24 year old group will account for 37.8 percent of the national increase of 30,783,000 workers while females over 25 are expected to take another 29.8 percent. Combined, these two groups will account for 67.6 percent of the overall nationwide growth. Males, over 25, will be represented by a 32.4 percent share.

By 1980, therefore, the shape of the Pennsylvania labor force by age, and sex is expected to be distributed as follows as compared to 1960:

TABLE 79

PENNSYLVANIA LABOR FORCE DISTRIBUTION BY AGE AND SEX (1960 and 1980 EST.)

Age	Total 1960 (000's) 1980	Percent	Total Males (000's)	Percent	Total Females (000's)	Percent
14-24	680/1,139	15.4/20.9	395/ 654	8.9/12.0	285/ 485	6.5/ 8.9
25-54	2,931/3,256	66.3/59.8	2,033/2,169	46.0/39.8	898/ 1,087	20.3/20.0
55 and over	810/1,053	18.3/19.3	570/ 634	12.9/11.6	240/ 419	5.4/ 7.7
	4,420/5,449	100.0/100.0	2,996/3,457	67.8/63.4	1,423/ 1,991	32.2/36.6
Median Age	40.2 39.1		40.8 39.4		38.8 38.6	

COMPARATIVE GROWTH OF PENNSYLVANIA INDUSTRIES BY EMPLOYMENT SHARES, 1965-1975

The foregoing sections which described the demographic characteristics of Pennsylvania's population and its current employment patterns foreshadow, at least until 1975, that the State cannot, on an overall basis, expect significant growth in the number of future jobs. It would seem more likely that an intensification of current trends will continue up to and somewhat beyond the middle of the next decade in that the direction of employment will continue to change in favor of non-manufacturing activities as against the manufacturing sector of industry.

The performance of State industry has been classified by the following major categories:

1. Industries Expected to Grow Faster than National Industry Aggregate

Printing and Publishing
Rubber and Miscellaneous Products Manufacturing
Business Services, Repair Services

2. Industries Expected to Grow More Slowly than National Industry Aggregate

Contract Construction
Primary Non-Ferrous Metal
Non-Electrical Machinery
Fabricated Metal Industries
Electrical Machinery
Transportation Equipment Other than Motor Vehicles and Aircraft
Apparel
Chemical and Allied Products
Trucking and Warehousing Services
Communications
Wholesale Trade
Food and Dairy Stores
Eating and Drinking Places
General Merchandise Stores
Other Retail Trade
Finance, Insurance and Real Estate
Hotels and Lodging Houses
Other Personal Services
Entertainment and Recreation
Medical and Health Services
Private Educational Services
Welfare and Non-Profit Organizations
Other Professional and Related Government and Public Education

3. Industries Expected to Decline in Pennsylvania although Growing Nationally

Non-durable goods other than food, textiles, and printing, chemicals
   and public goods
Rails and Railway express services
Miscellaneous transportation services

4. Industries Expected to Decline Both Nationally and in Pennsylvania

    Agriculture
    Mining
    Primary Ferrous Metal Mfg.
    Food and Kindred Products Mfg.
    Textile Mfg.
    Aircraft Mfg.

5. Industries Expected to Decline Nationally but Grow in Pennsylvania

    Motor Vehicles
    Utility and Sanitary Services

As indicated previously the employment changes occurring in the State are now considerably based on the changing character of the State's industry rather than its growth potential as evidenced by the differing proportions of industrial mix and State share since 1950 as between the manufacturing and non-manufacturing industrial sectors:

TABLE 80

POTENTIAL EMPLOYMENT CHANGES AS A RESULT OF STATE MIX
AND SHARE IN PENNSYLVANIA (LESS AGRICULTURAL EMPLOYMENT)

	Non-Mfg.		Mfg.	
Year	Industrial Mix	State Share	Industrial Mix	State Share
1950-60	- 95,837	-296,871	+ 2,071	-165,566
1960-65	+ 38,230	-149,840	- 67,700	- 63,800
1965-75	+228,737	-350,436	-174,194	- 65,415

As indicated in the above relationships it would appear that the following trends have developed:

1. Since 1950 changes in non-manufacturing are in the direction of a mix which potentially should increase employment growth above the national average for most non-manufacturing industries.

2. Conversely the mix of manufacturing industries in the State is becoming progressively less capable of expanding employment.

3. However, in non-manufacturing the inability to expand employment is and will be due primarily, in view of the currently low unemployment rate, to a lack of available labor, as a result of low population growth which primarily supports the industries concerned in the non-manufacturing sector.

4. Manufacturing represents the reverse image in that low employment growth will be more subject to the emerging industry configuration with its low labor demands rather than unavailability of labor.

The movement of future employment between industries through 1975, clearly away from manufacturing and into non-production oriented industries, should strongly influence the occupational demands of the forthcoming decade. Projections by the Pennsylvania State Department of Labor and Industry on occupational distributions indicate a disproportionate demand for professional, technical, clerical and service workers as follows:

TABLE 81

PENNSYLVANIA MANPOWER DISTRIBUTION BY OCCUPATION

Occupation	Estimated Number 1970	Percentage	Estimated Increase 1970-1975	Percent of Increase
Prof.,tech. & Kindred	645,500	13.6	65,000	24.3
Managers, Officials, & Prop.	345,000	7.2	18,000	6.2
Clerical & Kindred	760,000	16.0	52,500	20.3
Sales	370,000	7.8	18,700	6.2
Craftsmen, Foremen, & Kindred	724,000	15.2	35,000	12.2
Operatives	1,039,000	21.8	34,000	12.1
Service Workers, Prvt. Household	89,500	1.9	4,000	1.5
Service Workers,Other	471,000	9.9	44,000	17.6
Laborers	235,000	4.9	(-2,200)	--
Farmers, & Fem. Laborers	81,000	1.7	(-7,000)	---
Total	4,760,000	100.0	271,200	

As may be seen the broad occupations listed above are effected to create a heavier demand by 1975 than their representation in the population currently. This is particularly so of health occupations such as medical and dental technicians, practical nurses and hospital attendents, and for protective workers such as policemen in the service area. In addition, the anticipated need for scientists should also create a corresponding demand for scientific technicians as support personnel.

PROJECTED CHANGES IN REGIONAL EMPLOYMENT IN PENNSYLVANIA

As demonstrated in the preceding section, the preponderance of net new employment has been limited to a relatively small proportion of the State. The continuation of this trend, at least through 1975, seems assured. Projections of employment growth for the State and its labor market areas by the Pennsylvania Bureau of Employment Security indicate that the geographical movements of employment should be fairly stable in terms of past trends, as evidenced from the following table prepared by the Department.

TABLE 82

TOTAL RESIDENT EMPLOYMENT AND PERCENT CHANGE IN EMPLOYMENT FOR THE UNITED STATES, PENNSYLVANIA, TWELVE MAJOR AREAS, AND SELECTED SMALLER AREAS

1950, 1960, AND PROJECTED 1970, 1975

LABOR MARKET AREA	Total Resident Employment of Persons 14 Years & Over (in thousands)				Increase or Decrease from:					
					1950 to 1960		1960 to 1970		1960 to 1975	
	Census 1950	Census 1960	Projected 1970 1/	Projected 1975 1/	Number (000)	%	Number (000)	%	Number (000)	%
UNITED STATES	59,648.0 2/	66,681.0	81,000.0	87,500.0	+7,033.0	+11.8%	+14,319.0	+21.5%	+20,819.0	+31.2%
PENNSYLVANIA	3,930.7	4,127.2	4,760.0	5,022.0	+196.5	+ 5.0%	+632.8	+15.3%	+894.8	+21.7%
STANDARD METROPOLITAN STATISTICAL AREAS										
Allentown-Bethlehem-Easton SMSA	181.9	197.5	228.0	240.0	+ 15.6	+ 8.6%	+ 30.5	+15.4%	+ 42.5	+21.5%
Lehigh County	84.2	93.2	110.0	116.0	+ 9.0	+10.7	+ 16.8	+18.0	+ 22.8	+24.5
Northampton County	75.8	80.1	89.2	94.0	+ 4.3	+ 5.7	+ 9.1	+11.4	+ 13.9	+17.4
New Jersey portion	21.9	24.2	28.8	30.0	+ 2.3	+10.5	+ 4.6	+19.0	+ 5.8	+24.0
Altoona SMSA (Blair County)	47.5	46.2	51.3	53.2	- 1.3	- 2.7%	+ 5.1	+11.0%	+ 7.0	+15.2%
Erie SMSA (Erie County)	86.2	86.9	105.5	113.0	+ 0.7	+ 0.8%	+ 18.6	+21.4%	+ 26.1	+30.0%
Harrisburg SMSA	127.1	144.9	179.6	190.4	+ 17.8	+14.0%	+ 34.7	+23.9%	+ 45.5	+31.4%
Cumberland County	36.2	47.8	66.7	72.3	+ 11.6	+32.0	+ 18.9	+39.5	+ 24.5	+51.3
Dauphin County	82.3	87.9	101.7	106.2	+ 5.6	+ 6.8	+ 13.8	+15.7	+ 18.3	+20.8
Perry County	8.6	9.2	11.2	11.9	+ 0.6	+ 7.0	+ 2.0	+21.7	+ 2.7	+29.3
Johnstown SMSA	92.6	84.8	90.2	92.4	- 7.8	- 8.4%	+ 5.4	+ 6.4%	+ 7.6	+ 9.0%
Cambria County	67.2	61.7	64.0	64.9	- 5.5	- 8.2	+ 2.3	+ 3.7	+ 3.2	+ 5.2
Somerset County	25.4	23.1	26.2	27.5	- 2.3	- 9.1	+ 3.1	+13.4	+ 4.4	+19.0
Lancaster SMSA (Lancaster County)	97.5	113.2	136.9	146.0	+ 15.7	+16.1%	+ 23.7	+20.9%	+ 32.8	+29.0%
Philadelphia SMSA	1,438.0	1,645.2	2,011.0	2,160.0	+207.2	+14.4%	+365.8	+22.2%	+514.8	+31.3%
Bucks County	58.3	110.2	173.2	195.5	+ 51.9	+89.0	+ 63.0	+57.2	+ 85.3	+77.4
Chester County	59.6	77.5	104.5	115.0	+ 17.9	+30.0	+ 27.0	+34.8	+ 37.5	+48.4
Delaware County	156.3	206.5	269.2	292.5	+ 50.2	+32.1	+ 62.7	+30.4	+ 86.0	+41.6
Montgomery County	141.2	201.2	274.5	301.0	+ 60.0	+42.5	+ 73.3	+36.4	+ 99.8	+49.6
Philadelphia County	827.2	788.6	875.5	916.0	- 38.6	- 4.7	+ 86.9	+11.0	+127.4	+16.2
New Jersey portion	195.4	261.2	314.1	340.0	+ 65.8	+33.7	+ 52.9	+20.3	+ 78.8	+30.2
Pittsburgh SMSA	808.8	832.1	918.4	952.0	+ 23.3	+ 2.9%	+ 86.3	+10.4%	+119.9	+14.4%
Allegheny County	566.9	577.6	625.3	644.0	+ 10.7	+ 1.9	+ 47.7	+ 8.3	+ 66.4	+11.5
Beaver County	65.3	70.7	79.0	83.0	+ 5.4	+ 8.3	+ 8.3	+11.7	+ 12.3	+17.4
Washington County	72.0	70.8	76.1	78.0	- 1.2	- 1.7	+ 5.3	+ 7.5	+ 7.2	+10.2
Westmoreland County	104.6	113.0	138.0	147.0	+ 8.4	+ 8.0	+ 25.0	+22.1	+ 34.0	+30.1
Reading SMSA (Berks County)	112.8	117.1	134.3	140.6	+ 4.3	+ 3.8%	+ 17.2	+14.7%	+ 23.5	+20.1%
Scranton SMSA (Lackawanna County)	92.3	83.7	92.3	95.8	- 8.6	- 9.3%	+ 8.6	+10.3%	+ 12.1	+14.5%
Wilkes-Barre--Hazleton SMSA (Luzerne County)	138.9	121.9	133.8	140.5	- 17.0	-12.2%	+ 11.9	+ 9.8%	+ 18.6	+15.3%
York SMSA	101.2	115.7	140.5	150.0	+ 14.5	+14.3%	+ 24.8	+21.4%	+ 34.3	+29.6%
Adams County	16.7	20.0	24.9	26.9	+ 3.3	+19.8	+ 4.9	+24.5	+ 6.9	+34.5
York County	84.5	95.7	115.6	123.1	+ 11.2	+13.3	+ 19.9	+20.8	+ 27.4	+28.6

Analysis of the data contained above indicates that between 1960 and 1975 only ten of the 31 Labor Market area counties included in the table will have increased their employment at a rate near to or greater than the national rate of 31.2 percent. These are :

TABLE 83

TEN COUNTY GROWTH IN EMPLOYMENT

County	Employment 1960	Percent Increase 1960-75	Total Increase
Cumberland	47,800	+51.3	24,500
Bucks	110,200	+77.4	85,300
Chester	77,500	+48.4	37,500
Delaware	206,500	+41.6	86,000
Montgomery	201,200	+49.6	99,800
Perry	9,200	+29.3	2,700
Adams	20,000	+34.5	6,900
York	95,700	+28.6	27,400
Erie	86,900	+30.0	26,100
Westmoreland	113,000	+30.1	34,000
Total	968,000	+44.4	430,200
Total State (Including N.J. Employment	4,127,200	+21.7	894,800
Percent Counties to State	23.4		48.1

It is evident, therefore, that the areas listed above are, and will be, the most advanced competitively in terms of employment within the State in that, on the whole it is expected that they will grow through 1975 at a rate twice that of the State on the average and considerably faster than the employment rise for the nation as a whole. However, as in the past, it is expected that the Southeast quadrant will continue to experience the greatest absolute growth as can be seen by abstracting Erie and Westmoreland counties from the preceding table and substituting the expected employment growth for Pennsylvania residents of the New Jersey Labor Market area:

TABLE 84

COMPARISON OF EMPLOYMENT GROWTH S.E. COUNTIES TO TEN COUNTIES

	Employment 1960	Total Increase 1960-75	Percent Increase
Southeast Counties	768,100	370,100	48.8
Total 10 Counties	968,000	430,200	44.1
Percent S.E. to total	79.3	86.3	

Although the data presented here is not strictly comparable with that of the preceding section, primarily because of the overlap of years chosen and the definitional differences between work force and resident labor force, it would still seem evident there will be a continuous movement of the bulk of new economic resources into the southeastern and south central part of the State while most of the remaining areas remain in the status of marginal adjuncts to the State's economy.

SCHOOL POPULATION AND THE ENTRY LABOR FORCE

As indicated by the projections in the foregoing section, it is expected that the State labor force will continue to increase its representation of 14-24 year olds over the next decade. Between 1960 and 1970 the U.S. Department of Labor estimates that a total of 1,010,000 persons in this age group will seek employment in addition to those who were already working or seeking work. Between 1970 and 1980 an additional 1,139,000 will replace those of the previous decade. Since most of these will be products of the Pennsylvania school system, it will become a major requirement for the State to provide the requisite opportunity for these youngsters as they emerge into the world of work.

In respect to this, the dimensions of the school population and the potential labor force supplied and its implications can be illustrated in the following table for the years for which estimates are available:

TABLE 85

PENNSYLVANIA SCHOOL TURNOVER AND POTENTIAL LABOR FORCE ENTRIES (1965-1975)

Total Enrolled in Grade 9, 1962-72	2,338,100	
Total expected Secondary School Graduates, 1966-76	2,018,900	
Grade 9-12 Expected Secondary School Dropouts	319,200	319,200
Total Secondary School Graduate not continuing in postsecondary schools, 1965-75	825,200	825,200
Total Secondary School Grade enrolled in postsecondary schools 1962-72	994,900	
Total Expected to receive Bachelor's and First Professional Degrees 1966-76	573,500	573,500
Estimated postsecondary dropouts	421,400	421,400
Total labor force while attending school and potential additions to entry labor force over 10 years		2,139,300
Less total in labor force (14-24 years of age) 1965		831,300
Total new potential entries (14-24 years) 1966-75		1,308,000
Less expected age 14-24 new entries in labor force 1966-75		1,068,100
Net expected to enter labor force		239,900

The new labor force up to 1975 will be shaped by nearly one million graduates and persons with some advanced training while the number of non-continuing high school graduates are expected to numerically and proportionally decrease, as illustrated below:

TABLE 86

ESTIMATED PENNSYLVANIA SECONDARY AND COLLEGE GRADUATES (1965-1975)

Year	Secondary School Graduates not Continuing	Postsecondary Graduates First Professional and Bachelor	Estimated labor force (ages 14-24)	Estimated Population (14-24)
1965	88,400	40,600	831,300	1,842,300
1966	82,500	42,000	864,400	1,910,500
1967	77,300	45,000	898,800	1,965,800
1968	74,600	52,300	934,600	2,021,100
1969	76,400	61,200	971,800	2,076,400
1970	75,700	63,000	1,010,000	2,134,000
1971	72,600	65,200	1,021,400	2,159,200
1972	71,200	67,400	1,032,800	2,190,400
1973	68,100	71,900	1,044,400	2,221,600
1974	69,100	76,000	1,056,200	2,252,800
1975	69,300	78,200	1,068,100	2,284,000
Amt. Change (1965-1975)	-21.6	+93.1	+28.5	+24.0

The relatively rapid growth of college graduates, and, by inference, those with training beyond high school, is compared to the expected slower growth of the population 14-24 and the increase in that age group labor force indicates the greater influence of qualitative rather than quantitative changes in the nature of the incoming labor supply. This in turn requires the provision for requisite job and employment opportunities within the State to accommodate the needs of the future labor force.

The extent to which these job opportunities will be forthcoming can be shown in the following table which compares school achievement to projected levels of broad occupational categories for the year 1975 to illustrate closeness of fit between potential job seekers and occupational demand:

TABLE 87

LABOR ENTRIES VS. OCCUPATIONAL DEMAND

Projected Potential Labor Entries, 1975 (Estimated Average 1965-1975)		Extended Occupational Demand, 1975	
College Graduates	57,400	Professional & Managerial	54,300
High School and Some Postsecondary	124,600	Technical, Clerical, Sales and Craftsmen	105,300
H.S. non-graduates	31,900	Operatives, Service and Labors	99,200
Total	213,900		258,800

From the above estimates it would appear that, on the whole, labor shortages should occur in the State. These, however, are apparently related to the demand for less skilled, less well paying positions in the service, operative and laboring occupations which on the whole are related to lower level of educational achievement. Granted that a significant number of young females may never enter the labor force, it is most likely that the gap may even grow wider at the demand level for lower occupational categories. An additional factor which may serve to hide the disproportion of opportunity, of course, is the requirement of the armed forces for manpower, the result of which may be the failure to return of large numbers of young men after the completion of their service.

Of equal importance in this developing picture is the evidence that the State is also failing to meet the occupational requirements of 1975 in the teeth of the above disproportion in the sense that the numbers of relatively well educated youth may exceed gross demand. In the more skilled occupations there is expected to develop (as more fully presented in a later section of this report) a shortage of specifically trained manpower as evidenced below:

TABLE 88

OCCUPATIONAL DEMAND VS. AVAILABILITY

Anticipated Demand, 1957		Supply of Occupational Trained Graduates 1967	Est. Add'l Output Annually To Meet 1975 Demand
Non-degree Technical, Clerical Sale & Craftsmen	105,300	60,000	45,300
Operative & Service Occupation	99,200	40,900	58,300
	204,500	100,900	103,600

It would appear therefore, that while educational levels are rising in the State, opportunity is lagging behind, both in terms of the gross disproportion of projected occupational demand and the even greater lag in training youth for whatever opportunities may exist.

In summation, the following figures graphically illustrate the opportunity lag by comparing the expected proportion of job availability from new employment as against expected jobs created by withdrawals from the labor force in Pennsylvania as against the nation as a whole:

TABLE 89

RATIO OF NEW ENTRIES TO NEW GROWTH JOBS VS. REPLACEMENT JOBS, PENNSYLVANIA AND UNITED STATES 1960-1970, 1970-1980

	Pennsylvania	United States
Labor Force 1960	4,420,000	69,887,000
New Entries 1960-1970	1,010,000	19,934,000
Total	5,430,000	89,821,000
Expected Labor Force 1970	4,915,000	85,257,000
Expected Withdrawal (old Jobs)	515,000	4,564,000
New Growth at Full Employment	495,000	15,370,000
Ratio New Jobs to Old	.96X	3.3X
Labor Force 1970	4,915,000	85,257,000
New Entries 1970-1980	1,139,000	23,672,000
Total	6,054,000	108,929,000
Expected Labor Force 1980	5,449,000	100,670,000
Expected Withdrawals (Old Jobs)	605,000	8,259,000
New Growth at Full Employment	534,000	15,413,000
Ratio New Jobs to Old	.88X	1.1X

From the above projections it would appear that although the Pennsylvania experience will draw closer to that of the U.S. average, nevertheless the proportion of replacement jobs for youth will increase in the State with the obvious consequences that for those who wish to break into new paths, opportunities will by and large be bound in the State by the shape of the older labor force which they will replace unless the nature of the job structure itself radically changes.

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SECTION II--ECONOMIC TRENDS AND MANPOWER PROJECTIONS

CHAPTER V

SUPPLY AND DEMAND OF MANPOWER IN PENNSYLVANIA

The importance of an effective educational system to the competitive posture of Pennsylvania was emphasized in Chapter IV. Therefore, it seemed obvious that there should be conducted an examination of the occupational education manpower supply and demand in the Commonwealth.

The source and quantity of occupational education graduates is an essential factor in total program planning. These data are also a useful measure in determining the present status of occupational education and in assessing the training needs of the State. If the total annual supply is known, these data can be applied to the total annual manpower demand to obtain an estimate of the unmet needs each year. However, this is only one quantitative measure and bears no relationship to program quality.

The study of the supply of occupationally trained persons from preparatory programs was undertaken to identify the principal training agencies and their output of trained non-professional manpower in Pennsylvania in 1967. Nine major training institutions or agencies supplied the data for this report. Data from other educational agencies that contributed a comparatively small number of trained entrants into the labor force are not included in this report but they are described in the narrative about the education training agencies.

The institutional supply data in the report were grouped into eight major occupational categories. The major categories are combinations of specific occupational classifications (164 occupations for major counties and 65 for smaller counties). The information was collected on a county-wide basis and then grouped to obtain the State totals.

The major contribution of the institutional supply study to the program planning model was the count of all graduates by each occupation classification. However, this aggregate total by each occupation did not indicate the graduates by various types of institutions. The purpose of this report was to analyze the institutional output of occupational education graduates. The analysis will enable the reader to determine the relative contribution of each institution to a given occupation. The resulting information and its relationship to the aggregate total provides an additional dimension for program planning.

INSTITUTIONS OFFERING OCCUPATIONAL EDUCATION PROGRAMS

The agencies considered for inclusion in the survey were those offering preparatory programs for training first entrants into full-time skilled employment. Based on discussions with appropriate occupational educators, the following agencies were surveyed:

- Public Secondary Vocational and Technical Schools
- Community Colleges
- Private Trade and Technical Schools
- Private Business Schools
- State Trade and Technical Schools
- Manpower Development Training Programs
- State Retraining Programs
- Two-Year Programs in Four-Year Schools
- Private Junior Colleges

Other specialized training agencies were contacted in an effort to determine their output of occupational graduates in 1967. Included were the correctional institutions, vocational rehabilitation, apprenticeship programs, community affairs, Appalachia Regional Development Commission, and privately endowed vocational schools. There are still other agencies and institutions which offer some types of occupational education programs such as hospitals, and a number of civic, religious, and social welfare organizations.

Several factors should be kept in mind in this survey of trained manpower supply. First, no attempt was made to evaluate the quality or equate the output of one or more types of institutions. For example, no claim is intended that a technician graduated from a public secondary school was exposed to the same level of instruction as that provided by a postsecondary institution. Of the agencies surveyed in the study, the public schools and a few State-aided and endowed trade and technical schools offered occupational education at the secondary level. All other programs operated at the postsecondary level.

Secondly, for the purpose of this study an occupational education graduate was considered as one who completed his training in a less than baccalaureate degree program. It was assumed that upon graduation, the graduate was immediately available to enter the labor force in the occupation for which he was trained. Obviously, there is a certain amount of attrition, usually the result of graduates entering military service, college, other schools or possibly unemployment. Eninger states in his Report on Pennsylvania Data from a National Follow-Up Study of High School Level Technical and Industrial Vocational Graduates that:

> The great majority of Pennsylvania vocational program graduates go directly to work after completion of high school. For the three graduating classes (1953,1958, 1962) combined, 77.3 percent went directly to work, 5.1 percent went ot college, 15.6 percent went into military service and only 2.0 percent continued in some type of trade and technical school. There is a steady decrease in the percentage that goes directly to work and an increase in the percentage that goes to military service after school.

A final factor has to do with the identification of a graduate. The data in this supply study does not include those whose training was accomplished on-the-job or by a specific employer, including apprenticeship training. Neither does the data include those already employed who received training supplementary to their occupation.

The following narrative describes the major occupational education training agencies in Pennsylvania. It includes the nine agencies or programs whose graduate data were used in this report and a tenth group whose output of graduates was relatively small. Each contributing agency is described in general, examples of each are cited, and some suggestions are given that might be helpful in increasing the effectiveness of the agency as a supplier of occupational education graduates.

PUBLIC VOCATIONAL AND TECHNICAL SCHOOLS

The contributing occupational education training agencies in this group were the comprehensive high schools, the area vocational-technical schools (AVTS) and the self-contained vocational-technical high schools usually operating in the larger cities. Although most of the high schools in Pennsylvania are not comprehensive in the literal sense, many of them offer some kind of occupational education, oftentimes only office education. The truly comprehensive high schools in the State offer a variety of occupational programs, e.g., agriculture, home economics, office occupations, health services, distributive education, trade and industrial education, and technical education.

The area vocational-technical schools -- 40 operating in 1968-69 -- are a relatively new approach to occupational education in the Commonwealth. The course offerings in the area schools show much variation with an average of 22 courses being offered in each school. The average senior high school enrollment in the attendance area serviced by an AVTS is 5,100. The average student enrollment in an AVTS is approximately 900.

A projection of the number of graduates from the AVTS might approximate the following figures based on 30 percent each year of the average enrollment of 900.

TABLE 90

PROJECTION OF AVT SCHOOLS, ENROLLMENTS AND GRADUATES TO 1975

YEAR	NUMBER OF SCHOOLS (AVTS)	AVERAGE ENROLLMENT (10-11-12)	NUMBER OF GRADUATES
1967-68	28	25,200	756
1968-69	40	36,000	10,800
1974-75	70	63,000	18,900

The majority of the area schools are operated as shared-time service centers apart from the high schools in the service area. A few of the new area schools are operating as full-time or self-contained centers at which a student receives both his academic and occupational training. The programs in the public schools are primarily secondary programs, but there are adult programs and some postsecondary programs in operation. The data on the postsecondary and adult students are not included in this report unless the program is truly preparatory.

SUGGESTIONS FOR IMPROVEMENT

1. Reexamine and evaluate offerings in the light of updated local and State manpower data projections.

2. Make use of the systematic planning procedure described in Chapter VI to make program revisions or selections from all feasible alternatives.

3. Develop a unified system for reporting students in all occupational areas.

4. Establish and maintain a statistical record system that provides for obtaining occupational education student data as soon after the end of the fiscal year as possible.

COMMUNITY COLLEGES

The Pennsylvania Community College Act was signed into law on August 24, 1963. The Community College in Pennsylvania is a two-year comprehensive collegiate institution designed to serve primarily the people who reside in the community area. It is expected to provide for the fullest possible development of the potentialities and capabilities of all interested individuals. This education is to be provided at low cost and easy access. Most of the present community colleges have been established on a county basis. However, several have been developed to service multi-county areas. The recently approved Pennsylvania plan for high education provides for the development of additional community colleges in the State.

Characteristically community colleges offer comprehensive programs which include:

- Transfer curriculums (to 4 year colleges and universities)
- Occupational educational curriculums
- General education curriculums for cultural purposes
- Community Service curriculum
- Developmental or remedial curriculums

The concern of this study was only with the number of graduates from the occupational education curriculums. In 1968-69, there were twelve community colleges in operation in Pennsylvania all of which reported occupational education curriculums. Occupational education programs were offered in the fields of business, agriculture, public service, and industry.

The Fall enrollment for Pennsylvania's Community Colleges for the school year 1968-69 was 30,600 students. Students attending Pennsylvania's community colleges ranged in age from 18 to 65 years.

The community colleges are becoming a substantial contributor of occupational education graduates by gearing their curriculums to meet the occupational demands of the georgraphical area they serve. The State plan for higher education in Pennsylvania recommends that the community colleges devote about 70 percent of their resources to occupational education. It is expected that in the future, the total enrollment of the community colleges will greatly increase and that the major part of the increase will be in occupational education curriculums. If the ambitious goals of the community college movement are realized these institutions will truly become a prime source of skilled manpower.

SUGGESTIONS FOR IMPROVEMENT

1. Allocate the full amount (15% or more) of Federal funds coming to the State to the community colleges for postsecondary occupational education program development.

2. Place much more emphasis on the promotion and establishment of occupational education programs in the Community Colleges.

3. Develop and maintain an effective system of statistical and financial reporting.

4. Take necessary steps to participate in the graduate follow-up system now in operation for secondary school students.

PRIVATE TRADE AND TECHNICAL SCHOOLS

Private trade and technical schools are specialized schools, oriented toward industry's occupational training needs, that offer great variety and flexibility in their programs. Each program is designed with a particular occupational objective and often created to meet a particular need of industry in a given area.

The private trade schools in Pennsylvania are governed by the State Board of Private Trade Schools, which issues licenses to the schools and/or their agents. The board also approves the administrative, instructional, and supervisory staffs of these schools to establish and maintain acceptable standards of operation.

A private trade and technical school usually operates its programs with income from the tuition paid by students and therefore, a definite occupational need must exist before a program is established. It is a matter of economics whether a private trade school survives in an area. If the school is successful in securing jobs for its graduates, the likelihood of the school's continued operation is good. When a school is unable to get jobs for its graduates the school is usually discontinued.

Some of these schools offer short term courses in specialized areas, but the data used in this supply study includes only those who graduated from programs that are a year or longer in duration. The private trade and technical schools are making a substantial contribution to the trained labor force of Pennsylvania through occupational education at the postsecondary level. The private trade and technical schools have some virtues some of which the public programs might well emulate, namely, they admit students all during a school year; they give the student rigorous instruction in depth in a specialty; and they assure the student a job upon satisfactory completion of the program.

SUGGESTIONS FOR IMPROVEMENT

1. Foster and develop closer cooperation and working relationships between the Bureau of Private Schools' and the Bureau of Vocational, Technical and Continuing Education.
2. Solicit help from the teacher education institutions to provide an in-service education program to upgrade the instructors in the private trade and technical schools, especially in teaching methods.
3. Seek some resources to provide more research and evaluation of present programs.
4. Develop an accreditation agency for the private schools.
5. Explore the possibility of contractual arrangements between the private trade schools and public vocational schools to avoid duplication of services and to provide highly specialized training service at a minimum cost.

PRIVATE BUSINESS SCHOOLS

Legislation authorizing the licensing and regulation of private business schools, classes, and their agents was enacted in 1947 and amended in 1949. The enabling act also conferred powers and imposed duties upon the State Board of Private Business Schools. The objective of these schools is vocational preparation for graduates to a degree of competence necessary to hold entry level positions in offices, sales, planning, and closely related business occupations.

In 1968, there were approximately 160 private business schools operating in Pennsylvania. These schools enroll approximately 20,000 students with about 70 percent attending full-time and 30 percent in part-time or evening programs. Only the full-time trainees in programs of one year or longer were reported in this study.

The licensed private business schools in Pennsylvania may be classified into two groups, as follows:

1. Traditional General Business Schools. These schools offer one and two-year full-time programs to recent high school graduates in the stenographic-secretarial and accounting, business, administration areas. Many of them offer part-time evening classes in their regular programs and in the specialties described below.

2. Specialty Business Schools. These schools usually offer programs of shorter duration, often in evening sessions or on schedules less than full-time. The most common specialty currently is data processing but there are other specialties such as sales training, tax accounting, CPA coaching, traffic management, comptometer training, medical secretarial, etc.

At present there is no official relationship between the office of the Secretary of the State Board of Private Business Schools and the Bureau of Vocational, Technical, and Continuing Education, although there have been some informal conferences with the State Supervisors of Business Education and Technical and Industrial Education in the Vocational-Technical Bureau.

SUGGESTIONS FOR IMPROVEMENT

1. Seek opportunities for private business schools to share in appropriate situations in Federal-State programs under contract.

2. Develop greater cooperation and working relationships between the Bureau of Private Schools and other relevant Bureaus in the Department of Public Instruction.

3. Develop a statistical and financial reporting system so as to include data with that of similar public programs.

4. Seek participation in public education programs in curriculum planning, pre-service and in-service teacher training, evaluation and research.

STATE TRADE AND TECHNICAL SCHOOLS

These training institutions divide themselves into three categories based on the source of financial support:

1. State-owned institutions

2. State-aided institutions

3. Foundation or trust supported institutions

The State-owned institutions developed because of a specific need. The need was usually prompted by some group to assist students with socioeconomic or physical difficulties, e.g., orphans, deafness, etc. Some schools in this group began as private schools and later became State-owned. The schools offer a variety of programs such as auto mechanics, beauty culture, carpentry, printing, and business education. The students also receive general academic training. The annual enrollment in these schools is about 500 with an average of 125 graduates each year. They are primarily secondary schools with some postsecondary offerings.

The State-aided institutions are owned by the group or agency that originally established the school. The Commonwealth makes an annual appropriation toward the support of these schools. Additional income is obtained through invested endowments and gifts from alumni and friends. The program offerings are very similar to those in the State-owned institutions and the enrollment and number of graduates are about the same as that of the State-owned schools.

The foundation or trust supported schools are very similar to the other two groups, the chief difference being that the former does not receive any State appropriations. These schools are operated at various grade levels, some offer elementary through secondary education while others offer only secondary school programs.

The foundation or trust supported schools provide both academic and occupational education. The supply data in this group represents only the occupational education graduates, numbering about 200 annually from an enrollment of less than a thousand. The program offerings are much the same as those in the State-aided and State-owned institutions. All three groups are fine assets, serving very useful purposes to many disadvantaged students in Pennsylvania.

Examples of the three groups are listed below:

1. State-owned Schools
    a. Pennsylvania State Oral School of the Deaf
    b. Scotland School for Veterans Children
    c. Thaddeus Stevens Trade School
2. State-aided Schools
    a. Williamson Free School of Mechanical Trades
    b. Berean Training School
    c. Dowingtown Industrial and Agricultural School
3. Foundation or Trust Endowed Schools
    a. Milton Hershey School
    b. Girard College
    c. Patton Masonic School

SUGGESTIONS FOR IMPROVEMENT

1. Special study and consideration should be given to the possible utilization of all these institutions as residential schools under those provisions of P.L. 90-576, especially to serve the many handicapped and socioeconomic disadvantaged youth in the State.
2. Study and careful consideration should be given to the transposition of some of these schools' programs from a secondary to a postsecondary level.

3. Study and consideration should be given to the possibility of coordinating most of the programs of these schools into a unified occupational education organization in a highly placed division in the Department of Public Instruction.

MANPOWER DEVELOPMENT AND TRAINING ACT (MDTA)

The Manpower Development and Training Act (MDTA), established originally in March, 1962, has been amended five times since. MDTA is a Federal-State (90%-10% matching) cooperative training program designed to supply training to meet an expressed local manpower need primarily for the unemployed and underemployed.

As a manpower supplier, MDTA contributes between 4,000 and 5,000 trainees to the labor force annually. This program offers two types of occupational training -- on a group basis and individual referrals. Group training is conducted primarily in public training agencies, e.g., area vocational-technical schools. There are 36 group training agencies and 51 individual referral participating institutions in Pennsylvania. There are also two out-of-State individual referral institutions.

MDTA offers training programs usually on a project basis in any job classifications where there are identified job opportunities.

MDTA is a combined effort involving the Bureau of Vocational, Technical and Continuing Education in the Department of Public Instruction and the Bureau of Employment Security (BES) in the Department of Labor and Industry. When a need for occupational training is determined by BES, the MDTA administrative staff arranged for the conduct of an institutional program. On-the-job training programs are usually arranged for by the Pennsylvania Bureau of Employment Security.

SUGGESTIONS FOR IMPROVEMENTS

1. More realistic fiscal and administrative support should be given on the State level.
2. Standardization in reporting data should be developed to permit the use of electronic data processing techniques.

PENNSYLVANIA VOCATIONAL RETRAINING ACT

The Pennsylvania Vocational Retraining Act provides State funds, in excess of $500,000 annually, for vocational training of recipients of public assistance and unemployment compensation. Recent legislation also permits these funds to be used for training in the following categories:

1. Part-time workers not otherwise employed
2. Employed persons who are working below their skill levels and capacities.

Every training project must be initiated by a public school district and the Pennsylvania Department of Public Instruction. The initiating school district has full responsibility for the operation of the training project. The district can conduct the training in existing school facilities or through in-plant training or a work-experience program. The in-plant and work-experience training differs in that any product produced as a result of the former cannot be sold. In addition, trainees in the in-plant training must be segregated from the plants production workers. When a work-experience type of program is in operation, with wages being paid, the product belongs to the plant and may be sold.

Programs operated under the State Retraining Act are usually established as a result of some specific need arising in a locality. Many times the need is prompted by new industry moving into an area or modernization of existing industries. The programs are a maximum of six months duration for each trainee. A minimum of 30 hours of instruction must be conducted each week.

Presently 87 projects are being operated by 37 public schools in the Commonwealth. The training involves a yearly expenditure of about $500,000 in State funds. The program presently trains approximately 5,000 trainees annually. Typically trainees learned skills involved in such occupations as:

1. Power Sewing (Textile)
2. Production Machine Set-Up
3. Electronics Wireman
4. Knitting Machine Operator
5. Production Worker (Boot/Shoe)

New programs are being directed toward out-of-school youth and adults with special emphasis on the disadvantaged.

SUGGESTIONS FOR IMPROVEMENT

1. Additional financial support from the State would allow for the funding of more projects and hence aid more disadvantaged adults.

TWO-YEAR PROGRAMS IN BACCALAUREATE INSTITUTIONS

The two-year associate degree programs in baccalaureate institutions are offered primarily at off-campus centers. There are 33 off-campus centers maintained by six baccalaureate institutions within the State. The Pennsylvania State University maintains 20, the University of Pittsburgh 4, Temple University 3, Indiana University of Pennsylvania 2, Edinboro 2, Clarion 1, and the University Center at Harrisburg is maintained by The University of Pennsylvania, Pennsylvania State University, Elizabethtown, Temple and Lebanon Valley. However, only three of the above (The Pennsylvania State University, Temple University and the University of Pennsylvania) are reported as having awarded associate degrees in occupational education programs in 1967-68. The remainder of the programs offered in the off-campus centers are primarily less than associate degree occupational programs or transfer programs.

In 1967-68, 1,022 associate degrees were awarded in occupational education by the three aforementioned institutions. This number has been fairly constant since 1965-66, however, the establishment of community colleges in some areas has reduced the enrollments at the branch campuses. The Pennsylvania State University conferred 921 or 90.1 percent of the total associate degrees awarded at branch campuses. Most of these involved training at the technical or semi-professional level in the fields of chemical and electronics technology and in other engineering related curriculums.

SUGGESTIONS FOR IMPROVEMENTS

1. Every effort should be made to resolve areas of difference between off-campus centers and community colleges, especially in the occupational education programs.

2. Increase the number and variety of technical education offerings where a need exists to make the best possible use of all postsecondary programs.

3. Efforts should be made by all concerned to coordinate the secondary and postsecondary occupational education programs wherever possible. Much good in this regard could be accomplished by all involved agencies participating in the unified planning system described in Chapter VI.

PRIVATE JUNIOR COLLEGES

A junior college is an institution which offers at least a full two-year, postsecondary programs. Upon completion of a program the graduate is awarded an associate degree or other degree appropriate to a two-year program.

To receive an associate degree the graduate must complete a minimum of sixty semester hours of credit. A minimum of twenty semester hours (within the sixty) must be in general education. In addition to these requirements, a junior college may offer one or more of the following programs:

1. A broad general education for those not planning to continue their formal education.
2. A program of studies that parallels the first two years in a typical four-year baccalaureate curricula in a college or university.
3. An education on a technical or semi-professional level.
4. Courses in adult education.

There are fifteen approved private junior college operating in Pennsylvania, down from seventeen in 1965.

Junior college enrollments increased from 2,564 in 1959 to a peak of 14,262 in 1965. After that year, Point Park Junior College (in 1965) and York Junior College (in 1968) became four-year institutions causing a decline to 8,791 students. In 1967-68, these junior colleges awarded 2,431 associate degrees or 47.1 of the total.

Typical programs are offered in electrical or electronic technology, architectural or building technology, mechanical technology, and medical or biological laboratory technology. Business and Commerce-Related curriculums consitute major training programs in many of the private junior colleges.

SUGGESTIONS FOR IMPROVEMENT

1. Develop better communication and closer working relationships with the Bureau of Vocational-Technical and Continuing Education, and other appropriate bureaus in the Department of Public Instruction, especially concerning occupational education programs.

OTHER AGENCIES

The preceding narrative described the major contributors of occupational education trainees in Pennsylvania. Other agencies in the Commonwealth that provide, either directly or indirectly, occupational training are described briefly as follows:

The Bureau of Vocational Rehabilitation located in the Pennsylvania Department of Labor and Industry, in cooperation with the Federal government, is charged with the responsibility of helping to rehabilitate and prepare handicapped individuals for gainful employment. All Pennsylvania citizens who possess a disability (employment handicap), are eligible for vocational rehabilitation.

The rehabilitation program focuses on the individual disabled person. The Bureau of Vocational Rehabilitation provides the disabled individual with physical examinations and restoration, vocational counseling and guidance, artifical appliances, academic and/or vocational training, maintenance, occupations equipment and job placement as required in the rehabilitation process.

It should be noted that the Bureau of Vocational Rehabilitation is not a training agency but rather provides payments for training. The training may be conducted in agencies such as those cited in this report. Thus the Bureau is primarily a service agency for Pennsylvania's disabled persons with employment handicaps.

The Pennsylvania Apprenticeship and Training Council is the governmental agency responsible for approving and registering apprenticeship programs in the State. The Council was established in 1961 and was placed under the Secretary of the Department of Labor and Industry. The Council itself is composed of eleven members representing labor, management and the public sector. Its source of funds is the General Fund with an operating budget in 1966-67 of approximately $31,000.

Apprenticeship in its simplest terms is training for those occupations, commonly known skilled crafts or trades that require a wide and diverse range of skills and knowledge. Apprenticeship is a business-like system in which the young worker entering industry is given thorough instruction and experience on-the-job in all the practical and theoretical aspects of the trade.

The council's policy is to encourage the development of an apprenticeship and training system through the voluntary cooperation of management and labor; to provide for the establishment and furtherance of standards of apprenticeship and to safeguard the welfare of apprentices; to aid in providing maximum opportunities for unemployed and employed persons to improve their work skills and to contribute to a healthy economy by developing and maintaining a skilled labor force to meet the expanding needs of Pennsylvania industry and to attract new industry.

Presently, there are approximately 3,000 registered programs in Pennsylvania with 10,000 apprentices. The Pennsylvania Apprenticeship and Training Council does not have jurisdiction over any training institutions nor does it administer training programs. These responsibilities lie with the local program sponsor, usually a joint apprenticeship committee (JAC) composed of labor organization and employer representatives.

The development of the area vocational-technical schools in Pennsylvania, should foster a closer cooperation and coordination between the Bureau of Vocational, Technical, and Continuing Education and the Pennsylvania Apprenticeship and Training Council. It would be a logical step for an area vocational-technical school graduate to enter a registered apprenticeship program with some advanced credit as a means to further his development as a skilled craftsman.

The Education and Training Division of the Bureau of Corrections in the Pennsylvania Department of Justice is another agency with responsibility for occupational training. The training at the various correctional institutions is of a variety of types, i.e., extension in-house training and out-service training. Most of the correctional institutions in the State have facilities and equipment to provide certain occupational training while other training is provided through agreements with existing educational and/or training agencies.

State correctional institutions trainees are not prohibited from the areas of maintenance, construction, and industry, thus practically ninety percent of the inmates become occupationally experienced. Their major limitation is a lack of formal instruction in vocational related science and mathematics. Experimental programs in extension training are being conducted to provide both theoretical and practical instruction. Extensive use is made of the psychological records, self-inventories and other occupational tests provided through the guidance counseling sessions of the vocational rehabilitation staff. MDTA programs are preparing institutional trainees in such occupations as: carpet layer helper, telephone and cable lineman, truck drivers, and other occupations where a need exists.

The correctional institutions in Pennsylvania received education and training funds through the Economic Opportunity Act of 1964, the Elementary-secondary Education Act of 1965, MDTA, the Library Service and Construction Act, as well as, other Federal and State fiscal programs. The years encompassing 1966-1969 under Federal Acts have demonstrated the value and effectiveness of vocational-technical training in the State Correctional Institutions. The range of potentialities of the prison population in Pennsylvania are proving to be most extensive.

The preceding are the principal occupational education institutions and/or agencies in Pennsylvania. Doubtless there are others of considerable significance. Future sophistication and continuation of data gethering procedures will correct this void.

ANALYSIS OF DATA

This analysis of the supply data will present a profile of the data entered in the "Annual Supply" Column of the program planning model. For this analysis the profile will be in three areas of concern as follows:

1. The institutions contributing a supply of occupational education graduates.

2. The major occupational categories for which occupational education trains graduates.

3. The county where the occupational training took place.

The data for the analysis is presented in Tables 91 through 96. In discussing areas one and two above Tables 91, 92, 93, and 94 will be used. The third area will utilize data from Tables 95 and 96.

The numbers in Table 91 are the reported count of occupational education graduates from the training agencies. The numbers in the eight occupational categories are a summation of the 67 county totals. The county totals were obtained by combining the numbers in 165 occupational categories (large counties) and the numbers in 65 occupational categories (small counties). The last horizontal column in Table 91 is the total number of occupational education graduates reported from each training agency. The last vertical column on the right represents the total number of graduates reported in each of the eight occupational categories. These two total columns are important because they provide the basis for the percentages in Tables 92, 93, 94.

However, the internal portion of Tables 92 and 93 contain significant data for interpretive purposes. The total picture is understandable only when Tables 92 and 93 are analyzed in conjunction with Table 94.

For example, observe in Table 92 that 94.3 percent of the total farmers and farm workers are trained in the public secondary schools. But we note on Table 93 that this category accounts for only 2.0 percent of the secondary school's occupational education graduates. To continue the comparison, we can see on Table 94 that the farmers and farm workers category accounts for only 1.3 percent of all occupational graduates. Similar comparisions can be made in other categories.

Comparisons of this type give an indication of the present occupational education program emphasis in Pennsylvania. More significant information for the local program planners is the county data used to obtain the figures in these tables. The county data is summarized in Tables 95 and 96. A further breakdown of the data in Tables 95 and 96 into individual occupational categories is available from the Research Coordinating Unit in the Pennsylvania Department of Public Instruction.

TABLE 91
DISTRIBUTION OF 1967 GRADUATES BY TYPE OF INSTITUTION AND OCCUPATIONAL CATEGORY

OCCUPATIONAL CATEGORY	TYPE OF INSTITUTION									TOTAL CONTRIBUTION BY OCCUPATIONAL TYPE
	PUBLIC SECONDARY SCHOOLS	COMM. COLLEGES	PRIVATE TRADE SCHOOLS	PRIVATE BUSINESS SCHOOLS	STATE TRADE AND TECH. SCHOOLS	MDTA	STATE RETRAINING ACT	2-YR. PROGRAMS IN 4-YR. SCHOOLS	PRIVATE COLLEGES	
PROFESSIONAL, TECHNICAL AND KINDRED WORKERS	1968	232	1999	40	63	351	37	1068	189	5947
FARMERS AND FARM WORKERS	948	---	---	---	2	55	---	---	---	1005
MANAGERS, OFFICIALS AND PROPRIETORS (incl. farm)	1104	---	19	392	---	---	70	615	485	2685
CLERICAL AND KINDRED WORKERS	34282	374	444	7930	314	359	---	52	538	44293
SALES WORKERS	2687	7	390	187	---	55	---	---	---	3326
CRAFTSMEN, FOREMAN AND KINDRED WORKERS	5126	288	2350	---	232	1547	737	---	---	10280
OPERATIVES AND KINDRED WORKERS	349	---	286	---	17	899	3165	129	---	4845
SERVICE WORKERS	1927	52	547	---	17	1018	---	---	---	3561
TOTAL CONTRIBUTION BY TYPES OF INSTITUTION	48391	953	6035	8549	645	4284	4009	1864	1212	75942

TABLE 92
PERCENT OF GRADUATES IN EACH OCCUPATIONAL CATEGORY CONTRIBUTED BY EACH TYPE OF INSTITUTION

OCCUPATIONAL CATEGORY	TYPE OF INSTITUTION									TOTAL CONTRIBUTION BY OCCUPATIONAL TYPE
	PUBLIC SECONDARY SCHOOLS	COMM. COLLEGES	PRIVATE TRADE SCHOOLS	PRIVATE BUSINESS SCHOOLS	STATE TRADE AND TECH. SCHOOLS	MDTA	STATE RETRAINING ACT	2-YR. PROGRAMS IN 4-YR. SCHOOLS	PRIVATE COLLEGES	
PROFESSIONAL, TECHNICAL AND KINDRED WORKERS	33.1	3.9	33.6	0.7	1.1	5.9	0.6	17.9	3.2	100.0
FARMERS AND FARM WORKERS	94.3	---	---	---	0.2	5.5	---	---	---	100.0
MANAGERS, OFFICIALS AND PROPRIETORS (incl. farm)	41.1	---	0.7	14.6	---	---	2.6	23.0	18.0	100.0
CLERICAL AND KINDRED WORKERS	77.4	0.8	1.0	17.9	0.7	0.8	---	0.2	1.2	100.0
SALES WORKERS	80.8	0.2	11.7	5.6	---	1.7	---	---	---	100.0
CRAFTSMEN, FOREMAN AND KINDRED WORKERS	49.8	2.8	22.9	---	2.3	15.0	7.2	---	---	100.0
OPERATIVES AND KINDRED WORKERS	7.2	---	5.9	---	0.4	18.5	65.3	2.7	---	100.0
SERVICE WORKERS	54.1	1.4	15.4	---	.5	28.6	---	---	---	100.0
TOTAL CONTRIBUTION BY TYPES OF INSTITUTION	63.8	1.3	7.8	11.3	0.8	5.7	5.3	2.5	1.5	100.0

TABLE 93
PERCENT OF 1967 INSTITUTION GRADUATES IN EACH OCCUPATIONAL CATEGORY

OCCUPATIONAL CATEGORY	TYPE OF INSTITUTION									TOTAL CONTRIBUTION BY OCCUPATIONAL TYPE
	PUBLIC SECONDARY SCHOOLS	COMM. COLLEGES	PRIVATE TRADE SCHOOLS	PRIVATE BUSINESS SCHOOLS	STATE TRADE AND TECH. SCHOOLS	MDTA	STATE RETRAINING ACT	2-YR. PROGRAMS IN 4-YR. SCHOOLS	PRIVATE COLLEGES	
PROFESSIONAL, TECHNICAL AND KINDRED WORKERS	4.1	24.3	33.1	0.5	9.8	8.2	0.9	57.3	15.6	7.8
FARMERS AND FARM WORKERS	2.0	---	---	---	0.3	1.3	---	---	---	1.4
MANAGERS, OFFICIALS AND PROPRIETORS (incl. farm)	2.3	---	0.3	4.6	---	---	1.8	33.0	40.0	3.5
CLERICAL AND KINDRED WORKERS	70.8	39.2	7.4	92.7	48.7	8.4	---	2.8	44.4	58.3
SALES WORKERS	5.6	0.7	6.5	2.2	---	1.3	---	---	---	4.4
CRAFTSMEN, FOREMAN AND KINDRED WORKERS	10.5	30.2	38.9	---	35.9	36.1	18.4	---	---	13.5
OPERATIVES AND KINDRED WORKERS	0.7	---	4.7	---	2.6	20.9	78.9	6.9	---	6.5
SERVICE WORKERS	4.0	5.6	9.1	---	2.7	23.8	---	---	---	4.6
TOTAL CONTRIBUTION BY TYPES OF INSTITUTION	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 94
PERCENT OF TOTAL 1967 GRADUATES OF ALL INSTITUTIONS CONTRIBUTED BY EACH TYPE OF INSTITUTION TO EACH OCCUPATIONAL SUB-CATEGORY

OCCUPATIONAL CATEGORY	TYPE OF INSTITUTION									TOTAL CONTRIBUTION BY OCCUPATIONAL TYPE
	PUBLIC SECONDARY SCHOOLS	COMM. COLLEGES	PRIVATE TRADE SCHOOLS	PRIVATE BUSINESS SCHOOLS	STATE TRADE AND TECH. SCHOOLS	MDTA	STATE RETRAINING ACT	2-YR. PROGRAMS IN 4-YR. SCHOOLS	PRIVATE COLLEGES	
PROFESSIONAL, TECHNICAL AND KINDRED WORKERS	2.6	0.3	2.6	0.1	0.1	0.5	---	1.4	0.2	7.8
FARMERS AND FARM WORKERS	1.3	---	---	---	---	0.1	---	---	---	1.4
MANAGERS, OFFICIALS AND PROPRIETORS (incl. farm)	1.5	---	---	0.5	---	---	0.1	0.8	0.6	3.5
CLERICAL AND KINDRED WORKERS	45.1	0.5	0.6	10.4	0.4	0.5	---	0.1	0.7	58.3
SALES WORKERS	3.5	---	0.5	0.3	---	0.1	---	---	---	4.4
CRAFTSMEN, FOREMAN AND KINDRED WORKERS	6.8	0.4	3.0	---	0.3	2.0	1.0	---	---	13.5
OPERATIVES AND KINDRED WORKERS	.5	---	0.4	---	---	1.2	4.2	0.2	---	6.5
SERVICE WORKERS	2.5	0.1	0.7	---	---	1.3	---	---	---	4.6
TOTAL CONTRIBUTION BY TYPES OF INSTITUTION	63.8	1.3	7.8	11.3	0.8	5.7	5.3	2.5	1.5	100.00

INSTITUTIONAL ANALYSIS

An institutional analysis of Table91 becomes more meaningful if the numbers are changed to a percentage of the total as shown in Table 92. An examination of Table92 shows that the public secondary schools produce 63.8 percent of all the occupational education graduates. This is nearly six times the number produced by the second ranking agency-private business school. Another comparison shows that the public secondary schools produce over four times the number of occupational education graduates as the other public institutions or agencies combined - community colleges, State trade and technical schools, MDTA, State Retraining Act, and two-year programs in baccalaureate institutions.

The reader is reminded that the data is not intended to compare the level of programs offered in the secondary schools with those in the postsecondary institutions i.e. - community colleges. The data does indicate that at the postsecondary level the private institutions are preparing as many trainees as the public training agencies or institutions. This trend may be changing as more public postsecondary occupational education becomes available.

The analysis offers assistance and insights for future planning of the Bureau of Vocational, Technical, and Continuing Education. The data allows the bureau to assess the amount of direct or indirect control it exercises over the annual supply of occupational education graduates. Thus, the bureau has relatively direct control over nearly 75 percent of the occupational education in the State. (Public secondary schools, MDTA, State retraining.)

In addition, the bureau exercises varying degrees of indirect control over the training in the community colleges and the State trade and technical schools. The private institutions have very little relationship with the Bureau of Vocational, Technical, and Continuing Education.

An internal examination of Table 92 yields some interesting findings. It can be observed that the public secondary schools produce 50 percent or more of all the occupational graduates in the categories of farmers and farm workers, clerical and kindred workers, sales workers, craftsman, foremen, and kindred workers, and service workers.

OCCUPATIONAL ANALYSIS

Some interesting observations are provided by an analysis of the supply data from an occupational category point of view. The percentages in Table 93 provide the basis for such an analysis. The figures indicate that 58.3 percent of all the occupational education graduates are being trained as clerical workers. This is over four times as many trainees as the second ranking occupational category namely, craftsmen and foremen. One also notes that each of the remaining six occupational categories accounts for less than ten percent of the total.

Internally Table 93 provides some interesting insights. Almost 71 percent of the program emphasis in the public secondary schools is directed toward clerical training. Hopefully, as more area vocational-technical schools become operational a more desirable occupational dispersion will be evident in the public secondary schools.

The program emphasis in the community colleges is relatively concentrated in the technical (24.3%), clerical (39.2%), and craftsmen (30.2%) categories. It is expected that as the occupational education programs are added and expanded more dispersion of training will be indicated in future statistics.

The program emphasis in the private schools is indicative of their titles, namely, trade and business. The trade schools place 72 percent of their emphasis on training technicians (33.1%) and craftsmen (38.9%) while the business schools devote 92.7 percent of their training to the clerical occupations. The private schools depend on student tuitions to stay in operation. Thus, the placement of a graduate in the occupation related to training is most important and dictates a school's program emphasis.

The State trade and technical schools' programs parallel those of the public secondary schools. The State trade and technical schools do emphasize craftsmen training (35.9%) to a greater degree.

MDTA and the State Retraining Act are similar in their program emphasis. In both cases their programs are directed to meeting a specific need for employees in a given geographical area. Many times these needs are dictated by new industries moving into an area. Thus, the high percentage of training in the categories of craftsmen, operatives, and service workers.

The two-year programs in baccalaureate institutions place the majority of their emphasis on the training of technicians (57.3%). These technicians become the support personnel for the engineers and scientists. One-third of the programs (33.0%) in these institutions are directed toward managerial occupations.

The last group of training institutions - the private junior colleges- are providing only a limited amount of occupational education. It can be seen that managerial and clerical programs combined accounts for (84.4%) of all the occupational training in these colleges. In fact, the only other training offered in these institutions is in the technican area (15.4%).

The preceding analysis provides an indication of where each of the training agencies or institutions place their program emphasis. There are many factors that influence decisions on program emphasis, i.e. facilities, employment trends, level of training, finances, etc. To make judgments based entirely on graduate supply data would be an error. The occupational emphasis in the training agencies and institutions will change annually in response to demands for employees.

TOTAL SUPPLY ANALYSIS

Table 94 shows how the institutional and occupational category totals on Tables 92 and 93 were obtained. It is the internal analysis of Table 94 that is important. The percentages indicate the relative contribution of each type of institution to an occupational category based on the total of all graduates. It is not necessary to analyze the Table in detail, but a few examples may serve as an illustration of its value. The most prominent figure is the 45.1 percent in the clerical category of the public secondary schools. This figure indicates that the public secondary schools' clerical trainees account for nearly one-half of all the occupational education graduates. The remaining 50 percent of all the graduates are divided among the remaining occupational categories and types of institutions. Only one of these divisions is over ten percent (private business schools, 10.4%)--thus the figures are somewhat limited in value.

COUNTY ANALYSIS

Area three of the analysis relates to occupational education on a county basis. Table 95 shows the number and percent of graduates from occupational education institutions in each county. The Table allows the program planner to determine very quickly the number of occupational education graduates in his county. In addition, he can see what type of institutions, in the county, are providing the training. For State level planning Table 95 indicates what counties are providing the bulk of the occupational training. The State level planner can readily determine what types of training agencies exist in each county.

Table 96 provides an analysis of the supply data based on a county's contribution to an occupational category. Thus, the program planner can now determine the occupational emphasis of the training in his county. The data points out very clearly the county concentration of occupational education in Pennsylvania.

These two tables analyzed together provide county and State planners valuable information about current programs. This does not imply quality or level of offerings but rather program concentration and institutions providing the training.

CONCLUSIONS

There are many institutions and/or agencies training occupational education graduates. There are many commonalities in the programs offered by the training agencies cited in the report. However, each training agency has a certain uniqueness that makes it a preferable source of occupational training (less than baccalaureate level).

Several conclusions are apparent from the data present in the preceding study. These conclusions provide the basis for making valid recommendations concerning the supply of occupational education graduates.

Full effect of the area vocational-technical school movement in Pennsylvania is just beginning to present itself. As new schools continue to be built, the supply of graduates from these institutions will rise. These schools must be aware of the occupational needs of their service area if trained manpower surpluses are to be avoided.

A similar conclusion relates to the community colleges in Pennsylvania. The community colleges must continue to make their training relevant to the needs of the students and the community. This is especially important in occupational education programs of the community college. These institutions will contribute increasing numbers of trained manpower to the labor force in Pennsylvania.

An examination of the supply data from the private schools provides an interesting conclusion. The data shows that private schools (trade and business) in Pennsylvania are providing the bulk of post-secondary occupational education graduates. These schools must stay abreast of current labor market requirements or face extinction. The private schools in Pennsylvania are regulated by very competent personnel in the State Education Department's Bureau of Private Schools. However, the operation is almost entirely autonomous from the Department's Bureau of Vocational, Technical and Continuing Education. It would appear that closer cooperation between these regulatory agencies is essential.

The State trade and technical schools are unique in their own right since they provide residential training. These schools, at present, provide less than one percent of the occupational education graduates. However, within the framework of the new vocational amendments these institutions might be greatly expanded and become a very significant contributor of trained manpower.

Manpower Development and Training Act and the State Retraining Act provide specialized training based on similar criteria. The primary difference lies in their financial support. Programs operated under the above Acts make substantial contributions of trained manpower to local labor markets. These programs are especially important when new industry moves into a locality with a trained labor force deficit.

TABLE 95

NUMBER AND PERCENT OF 1967 GRADUATES OF OCCUPATIONAL EDUCATION TRAINING INSTITUTIONS BY COUNTIES

COUNTY	INSTITUTION																			
	PUBLIC SECONDARY SCHOOLS		COMMUNITY COLLEGE		PRIVATE TRADE & TECH. SCHOOLS		PRIVATE BUSINESS SCHOOLS		STATE TRADE & TECH. SCHOOLS		M D T A		STATE RETRAINING ACT		2 YR. PROGRAMS IN 4 YR. COLLEGES & UNIVERSITIES		PRIVATE JUNIOR COLLEGES		TOTAL	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Adams	289	0.6									20	0.5					1	0.1	310	0.4
Allegheny	7211	14.9			1978	32.8	2424	28.4			928	21.7	70	1.8	779	41.8			13390	17.6
Armstrong	538	1.1									1	0.0							539	0.7
Beaver	1283	2.7									124	2.9			13	0.7			1420	1.9
Bedford	251	0.5									64	1.5							315	0.4
Berks	1162	2.4			68	1.1	236	2.8			19	0.4	94	2.3	47	2.5			1626	2.1
Blair	702	1.5			33	0.6	79	0.9			136	3.2			57	3.1			1007	1.3
Bradford	226	0.5									31	0.7							257	0.3
Bucks	1753	3.6	230	24.1							20	0.5							2003	2.6
Butler	723	1.5	34	3.6							121	2.8							878	1.2
Cambria	1038	2.1			255	4.2					78	1.8	85	2.1			80	6.6	1536	2.0
Cameron																				
Carbon	253	0.5									5	0.1							258	0.3
Centre	482	1.0									27	0.6							509	0.7
Chester	987	2.0									210	4.9							1197	1.6
Clarion	260	0.5									1	0.0							261	0.4
Clearfield	577	1.2			75	1.2					6	0.1							658	0.9
Clinton	288	0.6																	288	0.4
Columbia	298	0.6									19	0.4							317	0.4
Crawford	350	0.7									13	0.3							363	0.5
Cumberland	587	1.2			4	0.1	12	0.1			6	0.1							609	0.8
Dauphin	819	1.7	50	5.3	111	1.8	529	6.2	116	18.0	99	2.3	32	0.8	5	0.3			1761	2.3
Delaware	1670	3.5			214	3.5	109	1.3	61	9.4	245	5.7	30	0.7					2329	3.1
Elk	146	0.3									1	0.0							147	0.2
Erie	1873	3.9			65	1.1	247	2.9			71	1.7			38	2.0			2294	3.0
Fayette	963	2.0			97	1.6	109	1.3			108	2.5			129	6.9			1406	1.9
Forest	6	0.0																	6	0.0
Franklin	514	1.1					36	0.4	38	5.9							20	1.7	608	0.8
Fulton	122	0.3																	122	0.2
Greene	262	0.5																	262	0.4
Huntingdon	245	0.5									1	0.0							246	0.3
Indiana	414	0.9			165	2.7													579	0.8
Jefferson	155	0.3									6	0.1							161	0.2
Juniata	94	0.2																	94	0.1

TABLE 95 (CONT'D.)

COUNTY	INSTITUTION																			
	PUBLIC SECONDARY SCHOOLS		COMMUNITY COLLEGE		PRIVATE TRADE & TECH. SCHOOLS		PRIVATE BUSINESS SCHOOLS		STATE TRADE & TECH. SCHOOLS		MDTA		STATE RETRAINING ACT		2 YR. PROGRAMS IN 4 YR. COLLEGES & UNIVERSITIES		PRIVATE JUNIOR COLLEGES		TOTAL	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Lackawanna	799	1.7					226	2.6			176	4.1			47	2.5	207	17.1	1455	1.9
Lancaster	1159	2.4			25	0.4	47	0.5	111	17.2	9	0.2	537	13.4			7	0.6	1895	2.5
Lawrence	459	0.9			58	1.1	136	1.6			119	2.8							772	1.0
Lebanon	375	0.8									1	0.0							376	0.5
Lehigh	980	2.0					34	0.4	265	41.1	56	1.3	110	2.7	46	2.5			1491	2.0
Luzerne	1473	3.0					554	6.5			290	6.8	209	5.2	125	6.7			2651	3.5
Lycoming	685	1.4	575	60.3			78	0.9			12	0.3	156	3.9					1506	2.0
McKean	315	0.7																	315	0.4
Mercer	440	0.9					24	0.3							8	0.4			472	0.6
Mifflin	150	0.3									26	0.6							176	0.2
Monroe	131	0.3									4	0.1							135	0.2
Montgomery	1682	3.5			9	0.2	131	1.5			11	0.3			28	1.5	166	13.7	2027	2.7
Montour	52	0.1																	52	0.1
Northampton	971	2.0					153	1.8			25	0.6	23	0.6					1172	1.5
Northumberland	578	1.2									51	1.2							629	0.8
Perry	150	0.3																	150	0.2
Philadelphia	5117	10.6	64	6.7	2670	44.2	2639	30.9	54	8.4	733	17.1	2315	57.7	434	23.3	589	48.5	14615	19.2
Pike	7	0.0																	7	0.0
Potter	111	0.2			49	0.8													160	0.2
Schuylkill	834	1.7					301	3.5			60	1.4	138	3.4	21	1.1			1354	1.8
Snyder	120	0.2																	120	0.2
Somerset	504	1.0									2	0.1	151	3.8					657	0.9
Sullivan	12	0.0																	12	0.0
Susquehanna	157	0.3																	157	0.2
Tioga	236	0.5																	236	0.3
Union	108	0.2																	108	0.1
Venango	223	0.5					6	0.1											229	0.3
Warren	258	0.6									2	0.1							260	0.3
Washington	850	1.8			23	0.4	84	1.0			109	2.6	27	0.7					1093	1.4
Wayne	113	0.2					28	0.3			5	0.1	2	0.1					148	0.2
Westmoreland	1881	3.9			8	0.1	162	1.9			124	2.9	30	0.8	42	2.3			2247	3.0
Wyoming	62	0.1									1	0.0							63	0.1
York	858	1.8			128	2.1	165	1.9			108	2.5			45	2.4	142	11.7	1446	1.9
TOTAL	48391	100.0	953	100.0	6035	100.0	8549	100.0	645	100.0	4284	100.0	4009	100.0	1864	100.0	1212	100.0	75942	100.0

TABLE 96

NUMBER AND PERCENT OF 1967 OCCUPATIONAL EDUCATION GRADUATES BY OCCUPATIONAL CATEGORIES IN EACH COUNTY

COUNTY	OCCUPATIONAL CATEGORY																	
	PROFESSIONAL TECHNICAL & KINDRED		CLERICAL & KINDRED WORKER		SALES WORKERS		CRAFTSMEN FOREMAN & KINDRED WORKERS		OPERATIVES & KINDRED WORKERS		SERVICE WORKERS		FARM & FARM WORK		MANAGERS OFFICIALS & PROPRIETOR		TOTAL	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Adams	1		168	0.4			67	0.7	18	0.4	10	0.3	46	4.5			310	0.4
Allegheny	1655	27.8	7041	15.9	1353	40.7	1865	18.1	174	3.6	667	18.7	50	5.0	585	21.8	13390	17.6
Armstrong	76	1.3	371	0.8			50	0.5			28	0.8			14	0.5	539	0.7
Beaver	9	0.2	988	2.2	129	3.9	89	0.9			192	5.4	13	1.3			1420	1.9
Bedford			214	0.5					56	1.2	2	0.1			43	1.6	315	0.4
Berks	130	2.2	1105	2.5	21	0.6	62	0.6	104	2.1	110	3.1	77	7.6	17	0.6	1626	2.1
Blair	134	2.3	398	0.9	24	0.7	196	1.9	100	2.1	55	1.6	78	7.8	22	0.8	1007	1.3
Bradford	15	0.3	167	0.4			15	0.2							60	2.2	257	0.3
Bucks	142	2.4	1349	3.1	111	3.3	233	2.3	26	0.5	120	3.4	22	2.2			2003	2.6
Butler	23	0.4	624	1.4			136	1.3	43	0.9	52	1.5					878	1.2
Cambria	65	1.1	1162	2.6			175	1.7	2		92	2.6	21	2.1	19	0.7	1536	2.0
Cameron																		
Carbon	37	0.6	150	0.4	11	0.3	42	0.4	12	0.2	6	0.2					258	0.3
Centre	16	0.3	366	0.8			72	0.7	4		2	0.1			49	1.8	509	0.7
Chester	5	0.1	709	1.6	49	1.5	118	1.2	236	4.9	46	1.3	34	3.4			1197	1.6
Clarion			232	0.5											29	1.1	261	0.4
Clearfield			515	1.2			58	0.6	1		1				83	3.1	658	0.9
Clinton			234	0.5			27	0.3							27	1.0	288	0.4
Columbia			237	0.5			36	0.4	8	0.2					36	1.3	317	0.4
Crawford			284	0.6			46	0.4							33	1.2	363	0.5
Cumberland			504	1.1			60	0.6			3	0.1	40	4.0	2	0.1	609	0.8
Dauphin	242	4.1	963	2.2	37	1.1	353	3.4			82	2.3	47	4.7	37	1.4	1761	2.3
Delaware	217	3.7	1380	3.1	188	5.7	341	3.3	150	3.1	42	1.2			11	0.4	2329	3.1
Elk	1		146	0.3													147	0.2
Erie	155	2.6	1732	3.9	43	1.3	158	1.5	30	0.6	65	1.8	85	8.4	26	1.0	2294	3.0
Fayette	71	1.2	791	1.8	37	1.1	153	1.5	270	5.6	43	1.2			41	1.5	1406	1.9
Forest			6														6	
Franklin			445	1.0			49	0.5	9	0.2	53	1.5			52	1.9	608	0.8
Fulton			105	0.2											17	0.6	122	0.2
Greene			234	0.5											28	1.0	262	0.4
Huntingdon	1		204	0.5											41	1.5	246	0.3
Indiana	2		341	0.8			163	1.6							73	2.7	579	0.8
Jefferson			144	0.3			1		3						13	0.5	161	0.2
Juniata			74	0.2											20	0.7	94	0.1

TABLE 96 (CONT'D.)

COUNTY	OCCUPATIONAL CATEGORY																	
	PROFESSIONAL TECHNICAL & KINDRED		CLERICAL & KINDRED WORKER		SALES WORKERS		CRAFTSMEN FOREMAN & KINDRED WORKERS		OPERATIVES & KINDRED WORKERS		SERVICE WORKERS		FARM & FARM WORK		MANAGERS OFFICIALS & PROPRIETOR		TOTAL	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Lackawanna	85	1.4	1062	2.4			149	1.4	13	0.3	22	0.6			124	4.6	1455	1.9
Lancaster	22	0.4	944	2.1	19	0.6	580	5.6	98	2.0	121	3.4	94	9.3	17	0.6	1895	2.5
Lawrence			513	1.2	13	0.4	54	0.5	119	2.5	23	0.6			50	1.9	772	1.0
Lebanon			276	0.6			40	0.4	1		35	1.0			24	0.9	376	0.5
Lehigh	108	1.8	962	2.2	19	0.6	138	1.3	172	3.6	43	1.2	15	1.5	34	1.3	1491	2.0
Luzerne	184	3.1	1582	3.6	26	0.6	413	4.0	236	4.9	98	2.8	15	1.5	97	3.6	2651	3.5
Lycoming	220	3.7	569	1.3	6	0.2	560	5.5			80	2.2			71	2.6	1506	2.0
McKean	31	0.5	244	0.6	18	0.5					12	0.3			10	0.4	315	0.4
Mercer	8	0.1	411	0.9											53	2.0	472	0.6
Mifflin	5	0.1	98	0.2			63	0.6	1		1				8	0.3	176	0.2
Monroe	8	0.1	93	0.2	5	0.2	1				5	0.1			23	0.9	135	0.2
Montgomery	201	3.4	1321	3.0	88	2.6	247	2.4	10	0.2	76	2.1	40	4.0	44	1.6	2027	2.7
Montour			37	0.1											15	0.6	52	0.1
Northampton	143	2.4	632	1.4	62	1.9	207	2.0	27	0.6	65	1.8	12	1.2	24	0.9	1172	1.5
Northumberland	19	0.3	340	0.8			256	2.5			2	0.1			12	0.5	629	0.8
Perry			137	0.3									13	1.3			150	0.2
Philadelphia	1530	25.7	5905	13.3	711	21.4	2314	22.5	2558	52.8	1147	32.2	65	6.5	385	14.3	14615	19.2
Pike			7														7	
Potter			75	0.2					49	1.0					36	1.3	160	0.2
Schuylkill	26	0.4	1026	2.3	27	0.8	102	1.0	120	2.5	19	0.5			34	1.3	1354	1.8
Snyder			99	0.2											21	0.8	120	0.2
Somerset			394	0.9			36	0.4	153	3.2	4	0.1	70	7.0			657	0.9
Sullivan			12														12	
Susquehanna			134	0.3											23	0.9	157	0.2
Tioga			199	0.5											37	1.4	236	0.3
Union			82	0.2											26	1.0	108	0.1
Venango			187	0.4	12	0.4	21	0.2	9	0.2							229	0.3
Warren			216	0.5	35	1.1			2						7	0.3	260	0.3
Washington	61	1.0	833	1.9			149	1.4					45	4.5	5	0.2	1093	1.4
Wayne	2		121	0.3							5	0.1			20	0.7	148	0.2
Westmoreland	191	3.2	1481	3.3	96	2.9	311	3.0	30	0.6	68	1.9	47	4.7	23	0.9	2247	3.0
Wyoming			52	0.1			1								10	0.4	63	0.1
York	106	1.8	866	2.0	186	5.6	73	0.7	1		64	1.8	76	7.5	74	2.8	1446	1.9
TOTAL	5947	100.0	44293	100.0	3326	100.0	10280	100.0	4845	100.0	3561	100.0	1005	100.0	2685	100.0	75942	100.0

CONCLUSIONS (continued)

The off-campus centers of baccalaureate institutions and the private junior colleges both award associate degrees in various occupational education programs. Most of these occupational programs are at the technical level with major emphasis in the engineering curriculums. These institutions are performing a vital educational function in Pennsylvania. As the need for skilled technicians continues to increase these institutions together with community colleges will be even more vital.

All of the occupational education training agencies in Pennsylvania are gaining in importance. This is especially true of public agencies as they relate to the requirements of the 1968 Vocational Education Amendments, P.L. 90-576. The new law, if fully implemented, places great emphasis on the occupational education programs conducted in the training agencies. Skillful program planning will be needed to match the supply of occupational education graduates with labor market demands.

RECOMMENDATIONS

The recommendations are based on the data collected, the conclusions, and the authors' observations while conducting the supply study. The recommendations focus attention on enhancing future collection, analysis and use of the annual supply of graduate data.

1. A close relationship must be maintained between the data collection agency, (Research Coordinating Unit) and all the contributing agencies.
2. The graduate supply data collection should become an integrated part of the Pennsylvania Vocational Education Follow-up System. The follow-up system should be expanded to include as many of the training agencies as feasible.
3. The resources of the private occupational education institutions should be considered as potential contractual agencies for the Bureau of Vocational, Technical and Continuing Education.
4. A closer working relationship should be established and maintained between the Bureau of Vocational, Technical and Continuing Education and the other training agencies and institutions.
5. The community colleges should continue to place increased emphasis on the development of occupational education curriculums.
6. The State-owned or supported trade and technical schools should be considered in the development of residential vocational-technical schools under P.L. 90-576.
7. Increased State financial support for Manpower Development and Training Act and State Retraining Act will enhance the programs.
8. The supply data in the program planning model should be updated annually.

RELATIONSHIP OF MANPOWER SUPPLY AND DEMAND

Supply is a function of several variables. One of the factors which was not taken into account directly in this study was the rate and direction of flow from one kind of work to another. Another factor not dealt with directly was the change of labels of some occupations which may leave them poorly defined.

Still another variable not considered directly in determining the Pennsylvania supply of trained manpower was international migration. Skilled aliens will find entry to the U.S. easier under new immigration rules which went into effect March 1, 1969. Rather than require individual clearance, the Labor Department will grant automatic certification to workers with 59 scarce skills who otherwise meet immigration qualifications. Machinists, jewelers, TV repairmen, tailors, hospital technicians are among those automatically certified. The Labor Department last year certified 141,827 alien workers for permanent employment in this country. Four of every ten settled in either New York or California.

The methodology for making quantitative projections of supply -- demand relationships were found to be rather primitive. As a consequence, many attempts to make employment projections for future periods of five years or more have ended up rather far from the target. In an Employment Service Review article[1], Dr. Dael Wolfle, Executive Officer of the American Association for the Advancement of Science and publisher of Science, identified two methods of forecasting professional employment demands that had been used for some time:

1. The statistical projection of past and present information, adjusted by whatever assumptions were thought to be reasonable to establish a trend for the future;

2. Asking employers how many employees in certain occupational classifications they expected to have on their payrolls at some future date and adding up their replies.

Although efforts have been made to refine both methods, neither one is wholly satisfactory.

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[1] American Association for the Advancement of Science and publisher of Science, (See August - September, 1967 Issue of Employment Service Review.)

Dr. Wolfle cited several factors that are important in determining the demand:

- Certainly first to consider are the numbers of positions, or the requirements for stated kinds of services.
- The way in which work in a field is organized. This is especially important in fields of work such as the health and technician occupations.
- In many fields, the supply available helps to determine the demand. If we have plenty of technicians, we find ways to use technicians.
- An increase in knowledge and skill in a field often brings about an increased demand for the services offered by professionals in that field.
- Significant new knowledge in a field is likely to lead to a marked increase in the demand for persons with that knowledge.
- Major, social or political decisions that suddenly increase the demand for professionals of a given category. An example of this would be the advent of Medicare and Medicaid under Social Security which created a sharp increase in the demand for all kinds of trained workers in the health field.

Dr. Wolfle drew the following conclusions on the interacting supply and demand variables:

> Some of the decisions that determine supply and demand are made by individuals when they make educational or vocational choices or when they decide to accept or reject a new job. Other decisions are made as deliberate acts of national policy. Still others come as consequences of a new development or an increase in knowledge.
>
> To combine the multiple factors that determine supply and demand into an effective analytical model will surely require us to go far beyond the tallying of employers' estimates and the statistical projection of trends.

> In addition to efforts to develop a manpower model that will necessarily be complex and difficult, other studies will be needed to provide the additional data the model will require.
>
> Manpower trends should be examined from the economic point of view, for surely economic factors are involved. They also need to be examined from the psychological or sociological point of view, for certainly psychological and social factors are involved. Economists, sociologists, and psychologists have all studied manpower trends and problems, but most of their studies have been conducted from the point of view of a single discipline. When each works alone, important aspects are overlooked. They will continue to be until economists, psychologists, and sociologists learn each other's languages and learn how to work together.

The foregoing describes the complexity of supply-demand relationships in making manpower projections. In order to develop some useful projections for purposes of the Pennsylvania Vocational Education Study, it was decided to use the statistical projection method. A matrix for making such projection, (Tomorrow's Manpower Needs), developed by the Bureau of Labor Statistics, U.S. Department of Labor, was used to make the Pennsylvania projections to 1975.

ANNUAL MANPOWER PROJECTIONS OF DEMANDS AND NEEDS TO 1975

An important facet of the Pennsylvania Study of Vocational, Technical and Continuing Education was the development of a statistical base to determine the extent to which the present occupational education programs are meeting manpower needs. The fact that no single acceptable methodology existed or that attempts made were severely criticized did not diminish the need for a fairly reliable statistical base of manpower supply and demand upon which to evaluate and plan vocational education programs.

This manpower and training data for Pennsylvania is therefore, a breakthrough of considerable significance. The input of employed workers for 1960 was taken from the U.S. Census of that year and the projections to 1975 were made by the Bureau of Employment Security in the Pennsylvania Department of Labor and Industry. Withdrawal, growth and supply data relative thereto were produced within the Department of Public Instruction's Vocational Education Research Coordinating Unit. The theory and mathematical development of this procedure is not beyond constructive critical examination. However, continuous improvement can be anticipated by the input of 1970 census data and re-evaluation of withdrawal, growth and supply data relevant to the year of that input.

It can be stated with considerable confidence that in 1975 Pennsylvania will have about 5,000,000 persons gainfully employed; that approximately 192,000 persons will withdraw from the labor force each year; that 66,000 new job openings will occur each year; that 259,000 job vacancies will exist annually; and that formal occupational education programs excluding college and university output, produced about 76,000 persons in 1967 to meet these job vacancies. For the first time, too, attention can be directed to specific occupations for which the educational programs of the State appear to be producing a supply of new job entrants in excess of the demands of the labor market.

Similar data on manpower and training were prepared and computerized by the Research Coordinating Unit for every county in Pennsylvania for use in county vocational, technical and continuing education program planning. Twenty-four counties exceeding 100,000 population have 164 occupational classifications projected to a 1975 employment level; seven counties have 63 occupational classifications also projected to a 1975 employment level; the remaining 36 sparsely populated counties list 63 occupational classifications based on the 1960 census data. Updated projections will be prepared for every county in each subsequent year. The Cumberland and Perry County projections which are not included in this report were used in developing the application of systematic planning procedures in Forms 3, 4, and 5, Chapter VI.

The annual supply figures for the professions were not obtained for this study; therefore, the annual need figures are not recorded for the professions on this form. In the ten classifications of technical engineers, the annual demand and supply figures represent highly skilled technicians as supporting personnel to engineers on the basis of an assumed 1 to 1 ratio of supporting technicians to engineers. The present actual ratio has been reported by the National Science Foundation as approximately .75 to 1.

The State summary provides the base for professional judgments which will produce recommendations to the State Board in regard to training and the allocation of funds to implement a more efficient State-wide program. The county data will localize problems and suggest possible program directions and promote local initiative in creating or expanding training facilities. One should not conclude that the area vocational-technical school concept is the only solution. Especially, in cases where the AVTS has not as yet been established, other types of vocational and technical education programs must be fully considered. Candidate solutions should be identified in each local area involved by giving consideration to all types of schools and all possible mediums of instruction. (Illustrated on Form 4 , Chapter VI).

METHODOLOGY USED IN THE PENNSYLVANIA STUDY

The figures in Column 1 of Table 97 are the official 1960 Bureau of Census data reported and published by the U. S. Department of Commerce. As stated previously, the projected employment 1975 figures in Column 2 were based on a methodology provided in the U. S. Bureau of Labor Statistics publication Tomorrow's Manpower Needs. The methodology was based on an occupational matrix reflecting changes to 1975 in occupational staffing patterns caused by economic, technological and demographic developments. This methodology was adapted by the Labor Market Information Section, Research and Statistics Division, Pennsylvania Bureau of Employment Security, to the Pennsylvania industrial and occupational structure and to trends in its economy. Stated simply, the projected 1975 employment figures in Column 2 are a product essentially of the following procedure: Multiplying the 1960 State percentage distribution of selected occupations (Census) by the pattern of national change factor to develop the 1975 percentage of occupational density and then applying this percentage, modified in light of the Pennsylvania situation, to projected total employment in Pennsylvania in 1975.

In essence, these figures represent what employment is expected to be in these selected occupations in 1975. They represent net growth between 1960 and 1975. They do not represent nor should they be interpreted as representing total demand or total replacement needs which, of course, would be considerably higher than net changes in the level.

On analysis, the estimates in Column 2 are on the conservative side assuming a high level of employment and this judgment is concurred in by analysts from the Bureau of Employment Security. It must be remember, however, that these data are to be used only as guides or tools and that the trend is the important thing since numerical accuracy is dependent at this time on too many unknown factors.

For vocational education planning purposes net growth figures are not enough. Estimates of annual demand are also necessary. The figures in Column 5 represent this annual demand. These estimates reflect not only natural growth due to population and economic changes but also requirements for replacements necessitated by turnover due to deaths, retirements, promotions, transfers, quits, etc.

There is no direct arithmetical relationship, nor was one intended, between the projected 1975 employment in Column 2 and the annual demand figure in Column 5. They represent two separate, distinct entities.

The method used to calculate the annual demand (beginning in 1969) is a straight line projection. Percent factors for annual withdrawal and annual growth were derived by using guidelines provided in Tomorrow's Manpower Needs. Each of the two factors was applied to the 1975 projected employment to derive the figures in Column 3 and 4 respectively. The sum of figures in these two columns equal the figures in Column 5. The supply figures in Column 6 are the number of 1967 graduates (new entrants into the labor force) of the major non-professional training agencies in the State. Column 5 minus Column 6 equals Column 7, thus, we have determined the net number of workers who presumably need to be trained annually. Detailed explanation of the methodology used, including the two sets of principal factors for withdrawals and growth, can be obtained from the Pennsylvania Research Coordinating Unit for Vocational Education.

Obviously, other methods of calculating annual demand could have been adopted. The fact is that no one knows which of any methods of calculating projections is the most accurate and this will not be known until sometime in the future when projections can be checked against a new set of actual figures such as the 1970 Census data or future labor market reports. It is planned to review and update all manpower projections at least annually.

All of the projections are to be used as guides rather than as absolute "nose" counts. It is hoped that the projected annual data will give some guidance to State and local vocational education planners, with regard to relative demands in each of the occupations. Of course, local vocational education planners will need to bias these data with locally developed or known data. These data will then form the basis for evaluation of the direction of existing and planned programs.

The principal difficulty in the past, of course, has been that no useful manpower projection data have been available in Pennsylvania. It is expected that these data and the methodology used will be rechecked and updated periodically with a view toward continous improvement in their reliability.

TABLE 97

Department of Public Instruction
Research Coordinating Unit
for Vocational Education

PENNSYLVANIA MANPOWER AND TRAINING DATA

STATE-WIDE TOTALS

DOT CODE	Occupational Classification	Census 1960 (1)	Projected Employment 1975 (2)	Annual With-Drawal (3)	Annual Growth (4)	Annual Demand (5)	Annual Supply (6)	Annual Need (7)	Penna. Code	Preparatory Curriculum
	GRAND TOTAL	4,127,208	5,022,000	192,595	66,561	259,150	75,942	161,405		
450	PROFESSIONAL, TECHNICAL & KINDRED WORKERS	441,149	710,500	21,219	28,849	50,068	5,947	20,930		
451	Engineers, Technical	53,750	96,200	2,405	3,848	6,253	616	5,637		
002	Engineers, Aeronautical	723	900	22	36	58	5	53	102	Aeron. Technology
	Engineers, Chemical	3,065	4,900	122	205	327	63	264	152	Chemical Technology
005	Engineers, Civil	7,713	12,900	326	516	842	110	732	153	Civil Technology
003	Engineers, Electrical	11,016	20,800	520	804	1,324	170	1,154	154	Elect. Technology
012	Engineers, Industrial	7,528	15,600	390	624	1,014	15	999	157	Industrial Tech.
007	Engineers, Mechanical	9,838	16,500	412	660	1,072	40	1,032	157	Mechanical Tech.
011	Engineers, Metallurgical	3,358	5,500	137	242	379	23	356	160	Metallurgical Tech.
010	Engineers, Mining	648	500	12	17	29	--	29	122	Mining Technology
010	Engineers, Sales	4,756	7,100	177	284	461	16	445	149	Sales Technology
019	Other Engineers Technical	5,105	11,500	287	460	747	174	573	199	Technology Specialty
	Natural Scientists	9,122	18,200	455	728	1,183	--	--		
013	Agricultural Scientists	265	400	100	16	116	--	--	180	Agriculture Science
041	Biological Scientists	508	1,300	32	52	84	--	--		Biological Science
022	Chemists	6,630	12,700	229	508	737	--	--	152	Chemical Science
024	Geologists & Geophysicists	320	400	10	16	26	--	--		Geological Science
020	Mathematicians	332	900	22	36	58	--	--		Mathematical Science
023	Physicists	896	1,900	47	76	123	--	--		Physical Science
099	Other Natural Scientists	171	600	15	24	39	--	--	199	Science Specialty
	Technicians Excluding Medical and Dental	31,033	56,000	1,736	2,520	4,256	2,177	2,079		
017	Designers	3,984	7,500	225	300	525	68	457	059	Drafting & Design
726	Electrical & Electronic	5,732	10,900	272	545	817	1,734	-917	056	Elect. Technology
	Radio Operators	1,013	1,300	32	39	71	2	69	055	Elect. Communication
018	Surveyors	1,985	3,300	82	132	214	10	204	053	Civil Technology
	Technicians, other	18,319	33,000	1,125	1,504	2,629	363	2,266	099	Tech. Specialty

TABLE 97 (CONT'D.)

DOT CODE	Occupational Classification	Census 1960 (1)	Projected Employment 1975 (2)	Annual With-Drawal (3)	Annual Growth (4)	Annual Demand (5)	Annual Supply (6)	Annual Need (7)	Penna. Code	Preparatory Curriculum
	Medical & Other Health Workers	90,660	157,400	4,879	6,296	11,175	1,200	5,107		
	Chiropractors & Therapists	3,257	4,900	137	205	342	--	--		Physical Therapy
072	Dentists	5,873	8,300	207	332	539	--	--		Dentistry
077	Dietitians & Nutritionists	1,597	2,100	84	94	178	--	--	115	Dietetics & Nutrit.
075	Nurses, Professional	40,611	67,600	1,919	2,528	4,447	205	4,242	176	Nursing, R.N.
	Nurses, Student	7,626	16,600	664	664	1,328	--	--	176	Nursing, R.N.
	Optometrists	933	1,700	42	68	110		--	075	Opticians
071	Osteopaths	447	1,900	47	76	123	--	--		Osteopathy
074	Pharmacists	5,869	6,600	165	264	429	--	--		Pharmacology
070	Physicians & Surgeons	15,459	24,000	600	1,008	1,608	--	--		Internal Medicine
045	Psychologists	741	2,100	58	88	146	--	--		Psychology
079	Technicians, Medical and Dental	7,672	20,600	931	929	1,860	995	865		Medical Assistant
073	Veterinarians	575	1,000	25	40	65	--	--		Veterinary Medicine
	Teachers	105,708	149,900	5,696	6,145	11,841	--	--		
092	Teachers Elementary	53,341	62,700	2,836	2,719	5,555	--	--		Teacher Education
091	Teachers Secondary	33,104	52,500	1,785	2,000	3,785	--	--		Teacher Education
	Teachers Other excluding college	8,951	15,500	480	620	1,100	--	--		Teacher Education
090	Teachers College	10,312	19,200	595	806	1,401	--	--		Teacher Education
	Social Scientists	2,169	3,700	92	148	240	--	--		
050	Economists	937	1,300	32	52	84	--	--		Economics
020	Statisticians & Actuaries	1,121	2,200	55	88	143	--	--	190	Business Education
059	Other Social Scientists	111	200	5	8	13	--	--		Sociology Specialty
	Other Professional, Technical and Kindred Workers	148,707	229,100	5,956	9,164	15,120	1,954	8,107		
160	Accountants & Auditors	27,920	38,700	967	1,548	2,515	--	--	090	Accounting & Comput.
001	Architects	1,505	2,000	50	100	150	--	--	150	Architectual Eng.
017	Draftsmen	18,407	28,700	717	1,262	1,979	1,567	412	059	Drafting & Design
110	Lawyers & Judges	9,392	12,800	320	512	832	--	--		Law
166	Personnel & Labor Relation Workers	5,739	9,800	245	392	637	--	--		Personnel & Traing.

TABLE 97 (CONT'D.)

DOT CODE	Occupational Classification	Census 1960 (1)	Projected Employment 1975 (2)	Annual With-Drawal (3)	Annual Growth (4)	Annual Demand (5)	Annual Supply (6)	Annual Need (7)	Penna. Code	Preparatory Curriculum
195	Social & Welfare Workers (N.E.C.)	5,868	11,000	442	483	925	--			Sociology Speciality
	Professional, Technical and Kindred Workers	79,876	126,100	8,215	4,867	8,082	387	7,695		Curriculum Spec.
421	FARMERS AND FARM WORKERS	98,764	74,000	2,590	-1,332	1,268	1,005	253	080	Agriculture Spec.
185	MANAGERS, OFFICIALS & PROPRIETORS	290,385	363,000	9,801	-1,597	8,204	2,685	5,519		Curriculum Spec.
200	CLERICAL & KINDRED WORKERS	591,172	812,500	28,437	19,500	47,937	44,293	3,644		Office Train. Spec.
217	Accounting Clerks and Bkprs.	45,745	56,700	1,814	1,417	3,231	9,181	-5,950	090	Accounting & Computing
212	Bank Tellers	8,377	14,200	482	340	822	8	814	092	General Clerical
211	Cashiers	26,664	50,300	1,911	1,207	3,118	375	2,743	092	General Clerical
219	Office Machine Operators	18,846	43,600	1,831	1,308	3,139	4,063	-924	091	General Bus. Data
232	Postal Clerks	13,278	13,300	345	319	664	--	664	092	General Clerical
237	Receptionists	6,809	9,800	392	294	686	429	257	092	General Clerical
201	Secretaries	91,883	138,500	5,817	4,432	10,249	13,960	-3,711	094	Steno-Secretarial
222	Shipping & Receiving Clerks	23,727	23,300	605	559	1,164	22	1,142	049	Distributive Occ.
202	Stenographers	18,060	27,200	1,142	870	2,012	1,496	516	094	Steno-Secretarial
223	Stock Clerks & Storekeepers	20,921	39,700	1,588	1,191	2,779	124	2,655	049	Distributive Occ.
235	Telephone Operators	21,335	22,900	1,030	480	1,510	1	1,509	092	General Clerical
203	Typists	31,579	47,000	2,115	1,081	3,196	473	2,723	092	General Clerical
209	Other Clerical & Kindred	263,948	326,000	9,365	6,002	15,367	14,161	1,206	092	General Clerical
250	SALES WORKERS	306,840	388,700	12,058	4,664	16,722	3,326	13,396		Distributive Occ.
258	Advertising Agents & Sales	1,581	2,300	64	34	98		98	049	Distributive Occ.
287	Demonstrators	1,272	1,800	57	21	78	221	-143	049	Distributive Occ.
250	Insurance Agents, Brokers	23,117	28,000	728	33	761	--	761	049	Distributive Occ.
250	Real Estate Agents & Brokers	7,522	10,400	280	135	415	--	415	049	Distributive Occ.
251	Stock & Bond Salesmen	1,756	2,500	280	248	528	--	528	049	Distributive Occ.
299	Other Sales Workers (N.E.C.)	271,592	343,700	10,649	4,193	14,842	3,105	11,737	049	Distributive Occ.

TABLE 97 (CONT'D.)

DOT CODE	Occupational Classification	Census 1960 (1)	Projected Employment 1975 (2)	Annual With-Drawal (3)	Annual Growth (4)	Annual Demand (5)	Annual Supply (6)	Annual Need (7)	Penna. Code	Preparatory Curriculum
	CRAFTSMEN, FOREMEN & KINDRED	618,288	759,000	21,213	15,204	36,417	10,280	26,137		Trade & Indust. Occ.
	Construction Craftsmen	143,853	168,300	5,486	3,534	9,020	2,348	6,672		Curriculum Spec.
861	Brickmasons, Stone, Tile	14,279	16,500	506	247	753	67	686	019	Masonry
860	Carpenters	39,642	42,000	1,616	642	2,258	676	1,582	007	Carpentry
821	Electricians	23,358	28,500	812	669	1,481	1,050	431	014	Electrical Trades
850	Excavating, Grading Oprs.	10,941	11,800	318	518	836	101	735	041	Heavy Eq. Operator
840	Painters & Paperhangers	20,893	22,500	1,001	450	1,451	181	1,270	024	Painting & Decorating
842	Plasterers	3,813	4,900	122	24	146		146	019	Masonry
862	Plumbers & Pipefitters	22,887	29,600	799	888	1,687	168	1,519	026	Plumbing
866	Roofers & Slaters	3,548	5,700	142	28	170	--	170	006	Building & Maint.
899	Structural Metal Workers	4,492	6,800	170	68	238	105	133	031	Sheet Metal
	Foremen (N.E.C.)	88,132	118,500	2,962	1,185	4,147	--	4,147		Foremanship Training
	Metalwrkg. Craftsmen Excluding Mechanics	74,644	77,500	1,937	3,100	5,037	1,884	3,153		Trade & Indust. Occup.
610	Blacksmiths, Forgemen	3,336	2,600	65	26	91	--	91	020	Metal Trades
805	Boilermakers	2,382	2,300	52	5	57	7	50	020	Metal Trades
512	Heat Treaters, Annealers	2,163	1,800	45	36	81	--	81	020	Metal Trades
600	Machinists	41,857	42,000	1,049	2,268	3,317	1,680	,637	018	Machine Shop
638	Millwrights	6,074	7,500	187	150	337	17	320	018	Machine Shop
804	Sheet Metal Workers	7,808	9,800	245	98	343	180	163	031	Sheet Metal
601	Toolmakers, Diemakers	11,024	11,500	287	517	804	--	804	018	Machine Shop
	Mechanics & Repairmen	151,743	230,400	5,760	5,299	11,059	4,160	6,899		Trade & Indust. Occup.
827	Air Condt., Heating & Ref.	3,724	5,400	135	108	243	320	-77	001	Air Condt. & Heating
621	Airplane	2,558	2,300	57	23	80	345	-265	002	Aircraft Mechanics
620	Motor Vehicles	43,438	56,000	1,400	1,680	3,080	2,202	878	005	Auto Mechanics
633	Office Machine Repairmen	1,631	3,700	92	232	324	71	253	003	Appliance Repair
822	Radio & TV Repairmen	5,825	9,000	225	180	405	288	117	029	Radio & TV
	Other Mechanics & Repairmen	94,567	154,000	3,851	3,084	6,935	934	6,001	003	Appliance Repair
	Printing Trades Craftsmen	21,005	22,000	550	110	660	594	66		Trade & Indust. Occup.
650	Compositors & Typesetters	13,314	10,900	272	11	283	516	-233	028	Printing
974	Electro & Stereotypers	652	1,000	25	1	26	30	-4	028	Printing
971	Engravers & Lithographers	2,189	3,600	91	47	138	48	90	028	Printing

TABLE 97 (CONT'D.)

DOT CODE	Occupational Classification	Census 1960 (1)	Projected Employment 1975 (2)	Annual With-Drawal (3)	Annual Growth (4)	Annual Demand (5)	Annual Supply (6)	Annual Need (7)	Penna. Code	Preparatory Curriculum
651	Pressmen & Plate Printers	4,850	6,500	162	51	213	--	213	028	Printing
	Other Craftsmen and Kind.	138,911	142,300	4,518	1,976	6,494	1,294	5,200		Trade & Indust.Occup.
526	Bakers	9,306	12,500	502	137	639	46	593	015	Food Trades
660	Cabinetmakers	3,626	3,900	97	58	155	247	-92	021	Mill Cabinetry
921	Cranesmen, Derrickmen, and Hoistmen	19,721	26,000	650	442	1,092	--	1,092	040	General Industrial
002	Inspectors	11,239	16,400	410	164	574	--	574	058	Instrumentation
700	Jwlrs., Wtchmkrs., Gold and Silversmiths	1,782	2,200	55	22	77	31	46	058	Instrumentation
321	Linemen & Servicemen	16,391	21,300	534	319	853	3	850	014	Electrical Trades
628	Loom Fixers	1,205	1,100	27	5	32	--	32	018	Machine Shop
079	Opticians, Lens Grinders and Polishers	1,364	2,100	52	12	64	--	64	075	Optician
769	Patrn. & Model Mkrs., Excluding Paper	3,602	5,000	125	50	175	50	125	025	Patternmaking
950	Stationary Engineers	19,444	20,500	512	102	614		614	040	General Industrial
739	Upholsterers	2,916	4,400	110	66	176	34	142	036	Upholstery
	Craftsmen (N.E.C.)	48,315	26,900	1,444	597	2,043	883	1,160	199	Trade Speciality
	OPERATIVES & KINDRED WORKERS	935,328	1,073,000	51,655	-9,442	42,213	4,845	37,368		Trade and Indust.Occ.
	Apprentices	5,741	7,000	140	280	420	--	420	199	Trade Speciality
739	Assemblers	33,968	40,500	1,215	810	2,025	--	2,025	040	General Industrial
720	Checkers, Examiners Inspectors	37,695	52,500	1,575	1,837	3,412	--	3,412	040	General Industrial
906	Deliverymen, Routemen and Cab Drivers	36,120	50,800	1,422	1,016	2,438	--	2,438	039	Occup. Orientation
502	Furnacemen, Smeltermen and Pourers	9,237	8,300	207	-83	124	--	124	040	General Industrial
504	Heaters, Metal	2,083	2,600	65	-26	39		39	040	General Industrial
361	Laundry & Dry Cleaning	20,732	24,200	968	605	1,573	6	1,567	017	Laundry-Press
939	Mine Operatives & Laborers (N.E.C.)	35,068	20,000	700	-450	300	53	247	022	Mine Maintenance

TABLE 97 (CONT'D.)

DOT CODE	Occupational Classification	Census 1960 (1)	Projected Employment 1975 (2)	Annual With-Drawal (3)	Annual Growth (4)	Annual Demand (5)	Annual Supply (6)	Annual Need (7)	Penna. Code	Preparatory Curriculum
316	Meat Cutters, Excluding Slightr. & Pckg. House	11,688	15,900	397	477	874	17	857	015	Food Trades
952	Power Station Operators	2,100	2,800	70	-28	42	76	-34	014	Electrical Trades
904	Truck & Tractor Drivers	101,221	128,000	3,200	5,120	8,320	175	8,145	039	Occup. Orientation
312	Welders & Flame Cutters	34,761	46,000	1,150	1,380	2,530	811	1,719	037	Welding
	Semiskilled Textile	93,679	95,900	4,795	-1,918	2,877	3,388	-511	035	Textile Production
685	Knitters, Loopers & Toppers	5,011	3,342	133	-33	100	130	-30	035	Textile Production
689	Sewers & Stitchers	82,342	88,585	4,504	-1,847	2,657	3,103	-446	027	Power Sewing
682	Spinners, Textile	1,175	1,693	67	-16	51	66	-15	035	Textile Production
683	Weavers, Textile	5,149	2,280	91	-22	69	89	-20	035	Textile Production
	Other Operatives (N. E.C.)	511,235	578,500	35,751	-18,512	17,239	319	16,920		Occup. Orientation
	SERVICE WORKERS, PRIVATE HOUSEHOLD	76,349	93,500	3,646	187	3,833	--	3,833	099	Inst. & Health Wrks.
	SERVICE WORKERS, EXCLUDING PRIVATE HOUSEHOLD	338,952	515,000	36,100	17,102	53,202	3,561	49,641	099	Inst. & Health Wrks.
	Protective Service Workers	43,329	71,000	2,250	2,534	4,784	8	4,776		Public Service
373	Firemen, Fire Protection	6,427	10,700	367	260	627		627		Public Service
375	Policemen, Marshals	17,514	35,800	1,171	1,584	2,755	8	2,747		Public Service
379	Guards, Watchmen	19,388	24,500	712	690	1,402		1,402		Public Service
311	Waiters, Cooks & Bar.	126,813	190,700	21,009	6,654	27,663	476	27,187	015	Food Trades
312	Bartenders	18,086	26,200	786	707	1,493	174	1,319		General Education
314	Cooks	28,029	39,700	2,191	1,794	3,985	202	3,783	015	Food Trades
317	Counter & Fountain Workers	10,478	20,000	1,000	800	1,800	12	1,788	097	Foods Service
311	Kitchen Workers	19,492	28,500	5,928	427	6,355		6,355	015	Food Trades
	Waiters, Waitresses	50,728	76,300	11,104	2,925	14,030	88	13,942	097	Foods Service
	Other Service Workers	168,810	190,800	10,766	5,589	16,355	2,553	13,802	099	Inst. & Health Aides
329	Attendants, Hospt. and Inst.	21,243	46,600	2,796	2,097	4,893	1,022	3,871	074	Nurses Aides
330	Barbers	11,126	16,800	420	168	588	31	557	009	Cosmetology
381	Chorwomen & Cleaners	16,573	24,400	1,220	244	1,464	--	1,464	099	Inst. & Health Aides
332	Hairdressers & Cosmetologists	18,673	30,000	1,800	900	2,700	292	2,408	009	Cosmetology
382	Janitors & Sextons	39,001	44,000	3,080	440	3,520	7	3,513	006	Building Maintenance
	Practical Nurses	13,125	29,000	1,450	1,740	3,190	1,201	1,989	076	Practical Nursing
	Other Service Workers (N.E.C.)	46,069	62,500	2,075	2,325	4,400	524	3,876	039	Occup. Orientation
	LABORERS, EXCLUDING FARM AND MINE	239,974	232,800	5,870	-6,574	-704	--	-704		
	OCCUPATION NOT REPORTED	190,007								

SECTION III

PROGRAM PLANNING AND IMPLEMENTATION

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SECTION III-PROGRAM PLANNING AND IMPLEMENTATION

CHAPTER VI

VOCATIONAL AND TECHNICAL EDUCATION PROGRAM PLANNING

THE NEED FOR A UNIFIED PLANNING APPROACH

State-wide program planning of Vocational, Technical and Continuing Education programs in Pennsylvania has been at best somewhat haphazard and fragmentary as it has been in most other states. For many years, the vocational education program was very limited in terms of meeting the many different occupational training needs of the labor force. For example, for a number of years, more than 75% of the trade and industrial education enrollments were in several highly skilled crafts, namely, machine shop, electricity, printing, automechanics, patternmaking, carpentry, cabinetmaking and drafting. The continuing demands in these fields for many years were readily identified and accepted. Hence, new or expanding local programs generally established one or more of these training offerings without so much as a local field study. The same general situation existed in agriculture, home economics, distribution and office practice.

Many of the limitations in vocational education have been caused by the lack of funds to plan, establish and operate programs beyond these several basic occupations. Except for general promotion of vocational education in the early years of the Federally aided programs, local initiative largely determined the establishment of a program and the choice of occupational offerings. Very little program planning was initiated at the State level and then only after the local community expressed its desire to initiate a program. Program planning consisted chiefly of looking at other programs and deciding to do likewise.

As the labor force has grown and diversified, and its needs have been more clearly identified; as the philosophy and practices of vocational education have broadened to take into account the growing demands in agriculture related jobs, gainful occupations involving home economics skills, technician jobs, health occupations, sales and service jobs of many different kinds and office jobs; as the Federal, State and local funds have been substantially increased particularly in the past five years; and as many other educational agencies and training programs have begun to play an increasingly important part in supplying trained manpower, two conclusions are inevitable:

(1) The State Board for Vocational Education and the Department of Public Instruction should play a substantial leadership role in State-wide program planning, and

(2) There should be developed and implemented an organized, systematic planning procedure in which all educational and training agencies can participate.

Only in this way does it seem possible that public and private funds can be used efficiently and effectively in meeting all of Pennsylvania's manpower needs; that unnecessary overlapping and duplication of effort and expense can be eliminated; that all occupational and training programs can be properly coordinated to the end that they do not produce surpluses of trained persons in some fields and neglect critical occupational demands and that occupatonal education will become an economic asset in Pennsylvania.

Occupational education programs of all kinds, public and private, are growing rapidly in Pennsylvania, especially those under the Department of Public Instruction. The demand for funds to finance the construction and operation of new and expanding programs is increasing tremendously. Other educational institutions and training agencies are also seeking increased public financial support. Therefore, it is essential that the State Board should examine all of the elements in occupational education, and plan a total unified program.

All of the concepts and procedures described in this chapter, lead to the planning of a total program of occupational education in the State. All of these are implied in the requirements of the new vocational education act, P.L. 90-576, The Vocational Education Amendments of 1968. Section 123 of this act dealing with new State plans makes it clear that each State will be expected to develop a State-local planning procedure that will assure the best use of funds in light of important training needs of all people as well as requirements of employers.

The Pennsylvania Study undertook to develop a "systems approach" to program planning, taking into account the following major factors:

(1) The existing vocational education programs,
(2) The supply of and demand for trained persons,
(3) The existing socio-economic conditions and trends,
(4) The available funds and resources

The planning of a vocational and technical education program in its socioeconomic environment is indeed a broad, complex problem. The many important aspects of the total problem cannot be ignored as they have been in the past. This application of the "systems approach" to vocational education planning is particularly appropriate for such reasons, as follows:

1. The importance of the problem--Occupational education warrants the use of a thorough and systematic planning procedure since it is a prime factor in dealing with current socioeconomic problems. A complex situation of this nature requires a planning approach which proceeds from objectives, rather than from preconceived solutions, vested interests, and biases.

2. The competitive environment--Occupational education is in competition with other educational programs for dollars. Also the various institutions offering occupational education programs are in competition for dollars. Program plans constructed according to the "systems approach" have a significant advantage over other plans in that they disclose and evaluate alternative courses of action. By this means, decision-makers can resolve the issues involved in a competitive situation. The rewards of a logically constructed plan in resolving differences of opinion, and in the allocation of limited resources (time, money, facilities, teachers, etc.) make it well worth the effort and cost.

3. The dynamic nature of the problem--The socioeconomic needs of Pennsylvania are constantly being reassessed and as a result, governmental policies are subject to change. In a plan constructed according to the "systems approach", the effect of changes can be determined more readily. Thus, such a plan becomes a working document, rather than a static record of past decisions.

4. Wide organizational involvement--Socioeconomic problems related to occupational education are broad, and many people and organizations--public and private, are involved. The total problem, therefore, includes the relationships between the affected organizations, as well as the substantive considerations of a vocational education program itself. Thus the nature and environment of the problem is complex, requiring a "systems approach" for its solution.

5. Quantification--Occupational education objectives, constraints, and goals are particularly amenable to quantification because they can be related to socioeconomic data. Therefore, a logical, quantitative case can be built to support a proposed program, as is required in the "systems approach".

Planning from a total system standpoint is not easy. It requires a high order of management leadership, organizational understanding and discipline. The systems procedure would require a sharp change in State organization and administration of vocational, technical and continuing education; an extensive in-service training of all State staff personnel; and an extensive pre-service and in-service training of local administrative and supervisory personnel. In addition, there would be required close working relationships and coordination with all other State and local education agencies and with other State and local governmental agencies, especially those concerned with economic and industrial planning, growth and development.

THE "SYSTEMS APPROACH" DEFINITION AND PHILOSOPHY

The planning procedure described in this section is based on an organized process of decision-making and program formulation known as the "systems approach". This is primarily a deductive process in which all work is organized in a series of planning and decision-making steps. Also all of the steps, including the decision structure, are clearly documented so that (1) the planning process can be reviewed, (2) alternative approaches can be considered and compared with the prepared plan, and (3) the effect of changing conditions and selection criteria on the plan can be studied. The planning system described here is therefore designed to be applied as a continuous process--a way of conducting a complex business with greater emphasis on logical decision-making.

In many explanations of the "systems approach", the central philosophy is often obscured by discussions of complex diagrams which illustrate only a portion of the features of the approach. In essence, the "systems approach" is a point-of-view, which can be described by contrasting it to a common and opposite approach to planning. This opposite approach may be designated as the "inductive" approach, since inductive type of thinking is dominant in its application. In this approach, facts, data, opinions, requirements, etc. are gathered and organized into a report or plan. The objectives serve principally as a guide to the organization of the plan. This planning approach is usually a one step process, and is suitable when the problem is simple enough that it can be understood in all of its ramifications by one man (with assistance from others in the data collection aspects of the planning process). The "inductive approach" is also applicable to problems in which the facts, data, opinions and requirements, i.e., the environment of the problem, is not expected to change in an unpredictable way with the passage of time. In other words, it applies to relatively simple, static problems. However, when this approach is applied to complex, dynamic problems, it is usually found that the resulting report or plan covers only a few aspects of the total problem, and that, due to changing conditions, it is obsolete soon after it is published.

Since as previously described in this section, the vocational and technical education planning situation is indeed complex and dynamic, the total problem must be structured and decisions made using a planning method capable of integrating the knowledge and skills of many people and organizations. The "inductive approach" is suitable only for the special studies needed to support the main stream of this planning effort.

GENERAL PRINCIPLES OF THE SYSTEMS APPROACH

Since the "systems approach" is, in essence, a "point-of-view", the general principles must be clearly understood before using the forms designed for a particular application. Without this understanding, the planning process can become merely an expensive paper-work exercise. These principles are as follows:

1. A Top-Down Approach--The planning process must begin with a clear, but general, statement of the objectives by the appropriate management level in the organization. In contrast, an opposite planning point-of-view (an inverted organizational approach) would be for the objectives to be formulated at the lower levels in the organization and then presented to the higher levels for review and approval or rejection. This passive management approach in the higher levels of the organization is not compatible with the "systems approach" to planning, since the inevitable iterations required in such a planning procedure would make the planning costs prohibitive.

2. Emphasis of Problem Defining--The steps involved in the complete definition of a complex problem, such as a vocational education program, represent a major portion of the planning work. In many cases, a problem clearly defined is half solved--or as Pythogoras expressed it: "The beginning is half of the whole".

3. Total System--The "systems approach" to planning requires first that the system under consideration be defined in terms of its boundaries. Within these boundaries, all of the elements of the problem must be identified and taken into account. This must be done even though knowledge in some of the aspects of the problem is incomplete or is subjective. In other words, the problem must be completely structured. The "systems approach" therefore compels the planners to think broadly, and not to pick just those areas for study in which they have the most understanding and experience.

4. Invention of Alternatives--The inventive process is encouraged and aided by the emphasis on problem defining in the "systems approach". In fact, an important requirement in this planning process (as opposed to the "inductive approach") is not to prejudge solutions, but to systematically study all possible candidate approaches to the problem before making a decision.

5. Quantification--The "systems approach" procedure requires that all information be quantified with objective data if possible, and when this cannot be done, subjective numerical values must be assigned. This is necessary because the decision-making and recording process in this planning approach is numerical. Also, numerical values are required in the evaluation of the operating programs.

6. Documentation--This planning approach requires that the total system not only be structured, but that this structure be completely documented with respect to problem definition, data inputs, candidate solution descriptions, trade-off studies, etc. The "systems approach" is an organizational planning approach, and thus requires complete documentation in order to permit broad participation by all concerned. This planning process is characterized by conciseness of the data presentation, by the participation of many agencies and people, and by the

traceability of the decision process. Thus, as environmental conditions and management policies change with time, this structured documentation approach enables the plan to be reviewed and updated on a continuous basis.

7. Organizational Compatability--In general, the "systems approach" requires that the organizational structure and the management point-of-view be compatible with the approach. Many planning activities are really special studies and are the work of a few people; whereas, the "systems approach" requires management leadership in setting objectives and goals, and the entire organization in the planning of programs, and later in evaluating their effectiveness.

THE SYSTEMS PLANNING PROCEDURES

Basically, the "systems approach" consists of the use of a problem-defining/problem-solving cycle, which is used successively at a number of levels of plan development. This cycle is shown in Chart 1. It begins with a general statement of the problem, known as the objectives. The second step is to completely identify the constraints or environment of the problem in such categories as: the financial situation and limitations, timing limitations, policy restrictions, and special problems.

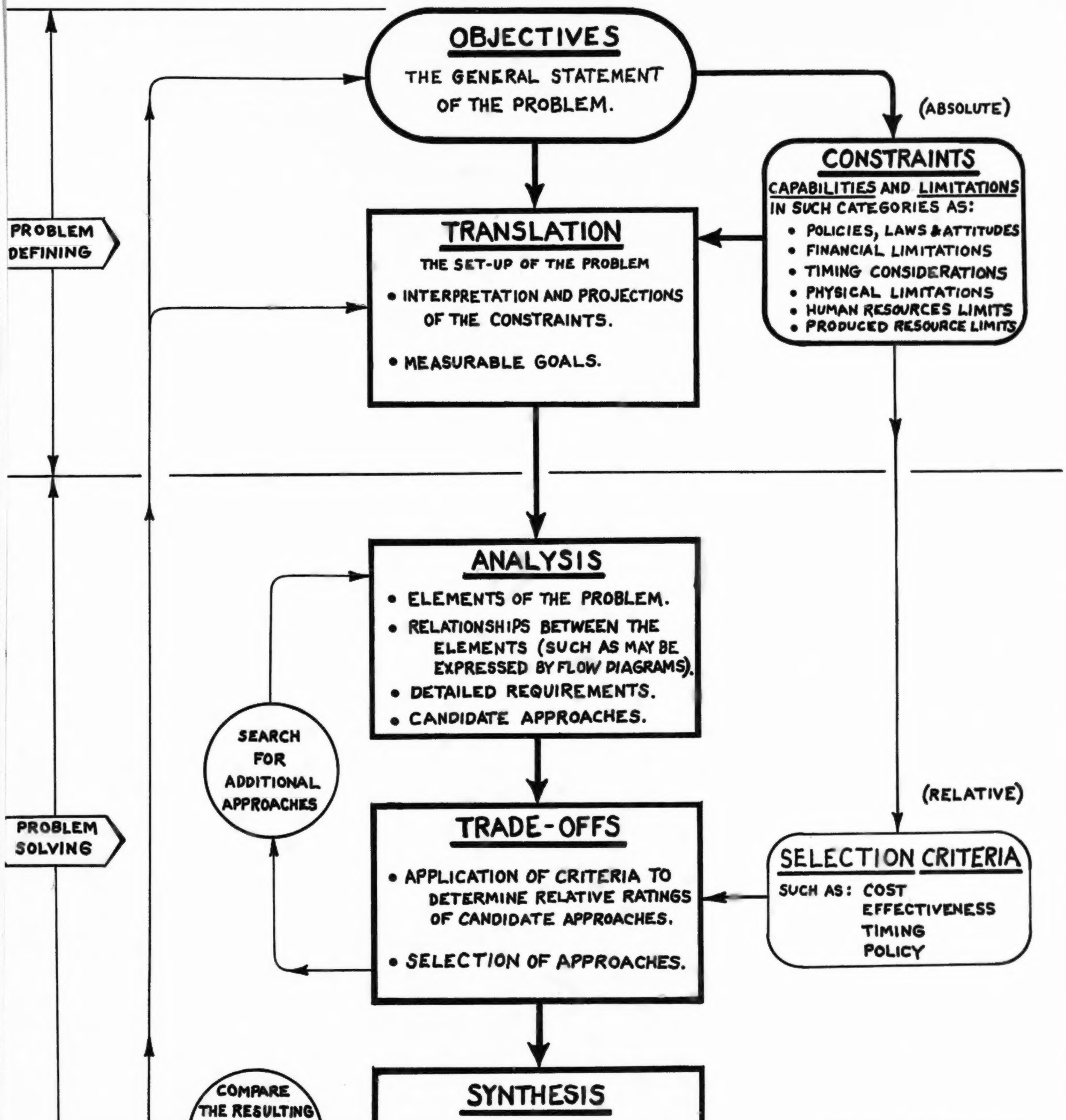
After the objectives and constraints have been determined, they must be translated into a complete statement of the problem. Additional work is usually required to do this. For example, the financial situation and limitations may be expected to change with time, therefore, the translation step involves making interpretations and projections of the constraints into the future. Also, the objectives should be quantified into measurable goals.

After the problem has been defined, the analytical problem-solving process can begin. This consists of identifying all of the elements or parts of the problem, determining the relationship between the elements, and their requirements. A number of candidate solutions or combinations of the elements are then devised. An example, which illustrates this analytical process as it applies to the planning of a vocational education program, is given in this chapter.

The relative merit of each candidate solution is determined by estimating the rating of each with respect to selection criteria. Such criteria as growth, skill level, and cost can be given objective ratings. Others, such as attractiveness and employer acceptance can only be given subjective ratings. The subjective criteria are usually just as important in the decision-making process as the objective criteria. Although the systems planning process cannot omit the subjective aspects of decision-making, the process is always made visible for review and reconsideration. The determination of the criteria ratings and the total rating of each candidate solution is known in systems terminology as a trade-off study.

CHART 1

THE SYSTEMS APPROACH CYCLE


OBJECTIVES
THE GENERAL STATEMENT OF THE PROBLEM.
(ABSOLUTE)
CONSTRAINTS
CAPABILITIES AND LIMITATIONS IN SUCH CATEGORIES AS:
• POLICIES, LAWS & ATTITUDES
• FINANCIAL LIMITATIONS
• TIMING CONSIDERATIONS
• PHYSICAL LIMITATIONS
• HUMAN RESOURCES LIMITS
• PRODUCED RESOURCE LIMITS
PROBLEM DEFINING
TRANSLATION
THE SET-UP OF THE PROBLEM
• INTERPRETATION AND PROJECTIONS OF THE CONSTRAINTS.
• MEASURABLE GOALS.
ANALYSIS
• ELEMENTS OF THE PROBLEM.
• RELATIONSHIPS BETWEEN THE ELEMENTS (SUCH AS MAY BE EXPRESSED BY FLOW DIAGRAMS).
• DETAILED REQUIREMENTS.
• CANDIDATE APPROACHES.
SEARCH FOR ADDITIONAL APPROACHES
(RELATIVE)
PROBLEM SOLVING
TRADE-OFFS
• APPLICATION OF CRITERIA TO DETERMINE RELATIVE RATINGS OF CANDIDATE APPROACHES.
• SELECTION OF APPROACHES.
SELECTION CRITERIA
SUCH AS: COST
EFFECTIVENESS
TIMING
POLICY
COMPARE THE RESULTING PLAN WITH THE OBJECTIVES & TRANSLATION
SYNTHESIS
PLAN OR REPORT
INPUT TO THE FOLLOWING PLANNING LEVEL.

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It is intended that this trade-off study should only be a guide to decision-making, and a means of making sure that all relevant criteria are used. The decisions, however, may differ from those indicated by the summation of the individual criteria ratings for special reasons--which should always be stated in the plan. Although decision-making should not be a completely mechanical process, a mechanical trade-off technique is useful in reducing a large amount of objective and subjective data to manageable proportions so that decisions can be made.

The final step of the systems approach cycle consists in the synthesis of the selected system element solutions into a total system or plan. The end product of the planning cycle is then evaluated against the original objectives and goals to determine if further planning is required.

LEVELS OF SYSTEM PLANNING

Two major principles of the "systems approach" are: first, that the planning is accomplished in a cycle of planning steps (as previously described), and second, that most complex planning situations can be broken into a hierarchy of decision-making levels. The cycle of planning steps is applied successively at each level so that the output of one cycle becomes the input to the cycle following it. Failure to recognize that such a hierarchy of levels exists, and to identify and separate the information in each level, is a major cause of confusion in the planning of large, complex systems.

The whole planning process can be structured in the form of a matrix of planning cycle steps versus levels of planning development. Such a matrix for a vocational education program plan, is shown in Chart 2. The planning levels identified in this case are: (1) Socioeconomic Planning (as related to vocational education), (2) Vocational Education Program Planning, and (3) Vocational Education Resources Planning. Thus, the socioeconomic situation in a State and local area helps to define the vocational education needs and the courses required. The courses in turn serve to identify the educational resources required.

It is not necessary that all of the steps be started in the sequence shown on the chart, since many can be done concurrently; however, each step must be completed in the order shown. The planning system is basically deductive and each step depends on outputs of the previous step before it can be completed.

PLANNING FLOW DIAGRAM

The problem-solving steps, described on the bottom half of the planning matrix (Chart 2) are shown in the flow diagram, Chart 3. This flow diagram is organized in the same three planning levels shown in Chart 2. These levels are represented by three columns: (1) Socioeconomic Planning, (2) Vocational Education Program Planning, and (3) Vocational Education

CHART 2

PROCEDURE FOR VOCATIONAL EDUCATION PROGRAM PLANNING

	PLANNING CYCLE STEPS	←(PLAN DEVELOPMENT LEVELS)→		
		① SOCIO-ECONOMIC PLANNING	② VOC. ED. PROGRAM PLANNING	③ VOC. ED. RESOURCES PLANNING
(PROBLEM DEFINING)	**OBJECTIVES** GENERAL STATEMENT OF THE PROBLEM	(1.1) DETERMINE THE SOCIO-ECONOMIC NEEDS AND PLANS OF A LOCAL AREA WHICH AFFECT THE PLANNING OF A VOCATIONAL AND TECHNICAL EDUCATION PROGRAM.	(2.1) DEFINE A VOCATIONAL AND TECHNICAL EDUCATION PROGRAM IN TERMS OF OCCUPATIONAL FIELDS AND COURSES WHICH WILL IMPROVE THE LOCAL SOCIO-ECONOMIC SITUATION.	(3.1) DETERMINE THE RESOURCE REQUIREMENTS AND THE COSTS TO IMPLEMENT THE VOCATIONAL AND TECHNICAL EDUCATION PROGRAM.
	CONSTRAINTS THE EXISTING CONDITIONS AND ENVIRONMENT OF THE PROBLEM	(1.2) IDENTIFICATION OF EXISTING SOCIO-ECONOMIC CONDITIONS WHICH INFLUENCE THE PLANNING OF A VOC. ED. PROGRAM: • SOCIO-ECONOMIC NEEDS. • INDUSTRY NEEDS SURVEYS. • SPECIAL SOCIO-ECONOMIC PROBLEMS.	(2.2) IDENTIFICATION OF EXISTING AND PRESENTLY PLANNED PROGRAMS (AS DEFINED BY COURSES OF OCCUPATION'L INSTRUCTION). SURVEYS OF THE SUPPLY OF STUDENTS AND THEIR OCCUPATIONAL PREFERENCES.	(3.2) IDENTIFICATION OF EXISTING AND PRESENTLY PLANNED -- • PROGRAMS (AS DEFINED BY COURSE/RESOURCE COMBINATIONS). • FACILITIES AND MAJOR EQUIPMENT. FINANCIAL AND RESOURCE PROCUREMENT LIMITATIONS.
	TRANSLATION PROBLEM SET-UP: 1. INTERPRETATIONS AND PROJECTIONS OF CONSTRAINTS. 2. MEASURABLE GOALS BASED ON THE OBJECTIVES.	(1.3) THE SOCIO-ECONOMIC PROBLEM: • INTERPRETATION OF THE SOCIO-ECONOMIC INFORMATION. • PROJECTIONS OF THE SOCIO-ECONOMIC INFORMATION AND INTERPRETATIONS INTO THE FUTURE. • MEASURABLE (LOCAL AREA) SOCIO-ECONOMIC GOALS.	(2.3) THE VOC. ED. PLANNING PROBLEM: • THE TRANSLATION OF INDUSTRY EMPLOYMENT NEEDS (GROWTH AND REPLACEMENT) INTO OCCUPATIONAL TRAINING NEEDS. • MEASURABLE (LOCAL AREA) VOC. ED. PROGRAM GOALS.	(3.3) PLANNING PROBLEM (CONTINUED): • THE TRANSLATION OF COURSE REQUIREMENTS INTO RESOURCE REQUIREMENTS. • PROJECTIONS OF THE FOLLOWING INTO THE FUTURE: · RESOURCE UNIT COSTS · TECHNOLOGICAL DEVELOPMENTS
(PROBLEM SOLVING)	**ANALYSIS** 1. IDENTIFICATION OF SYSTEM ELEMENTS. 2. DETERMINATION OF THE RELATIONSHIPS BETWEEN THE ELEMENTS. 3. DETAILED REQUIREMENTS. 4. CANDIDATE APPROACHES.	(1.4) STEPS: SEE CHART 3 • CONSTRUCT A LIST OF POTENTIAL NEW INDUSTRIES. • OBTAIN DATA RELATIVE TO CRITERIA, WHICH CAN BE USED TO RATE THE ATTRACTIVENESS OF POTENTIAL NEW INDUSTRIES TO A TYPICAL COMMUNITY.	(2.4) STEPS: SEE CHART 3 • DETERMINE THE ANNUAL EMPLOYMENT NEEDS OF POTENTIAL NEW INDUSTRIES. • DETERMINE THE ANNUAL NEEDS OF EXISTING INDUSTRIES. • DETERMINE TOTAL OCCUPATIONAL TRAINING NEEDS. • SHORTAGES AND SURPLUSES.	(3.4) STEPS: SEE CHART 3 • DETERMINE THE RESOURCE REQUIREMENTS PER COURSE. • DETERMINE THE OPERATING AND CAPITAL COSTS FOR EACH COURSE. • DETERMINE ALTERNATIVE PROGRAMS (COURSE/RESOURCE COMBINATIONS).
	TRADE-OFFS 1. DETERMINE SELECTION CRITERIA. 2. DETERMINE RATING OF EACH CANDIDATE APPROACH USING EACH CRITERIA. 3. SUMMARIZE RATINGS AND MAKE SELECTIONS.	(1.5) DETERMINE RATINGS OF POTENTIAL NEW INDUSTRIES USING TWO CATEGORIES OF CRITERIA AS FOLLOWS: • ATTRACTIVENESS OF THE INDUSTRIES TO THE COMMUNITY. • ATTRACTIVENESS OF POTENTIAL NEW INDUSTRIES TO LOCAL AREA. (USE PRODUCT OF EACH TOTAL RATING) SELECTION OF POTENTIAL NEW INDUSTRIES FOR PLANNING PURPOSES.	(2.5) DETERMINE SOCIO-ECONOMIC VALUE RATING OF EACH OF THE OCCUPATIONAL TRAINING NEEDS USING CRITERIA AS: • OCCUPATIONAL DENSITY • OCCUPATIONAL GROWTH • LABOR SHORTAGE • SKILL LEVEL SELECTION OF COURSES OF OCCUPATIONAL INSTRUCTION.	(3.5) DETERMINE RATINGS FOR EACH COURSE/RESOURCE COMBINATIONS USING CRITERIA SUCH AS: • SOCIO-ECONOMIC VALUE • RESOURCES COST/STUDENT • VALUE RATING/COST • FUNDING AVAILABILITY • COURSE ATTRACTIVENESS SELECTION OF VOC. ED. PROGRAMS
	SYNTHESIS SYNTHESIZE SELECTED APPROACHES INTO A SYSTEM OR PLAN. (INPUT TO THE FOLLOWING PLANNING LEVEL)	(1.6) LOCAL AREA SOCIO-ECONOMIC DEVELOPMENT PLAN • RESOURCE DEVELOPMENT PROGRAMS. • INDUSTRIAL DEVELOPMENT NEEDS. • ARRANGEMENTS WITH INDUSTRIES. (INPUT TO LEVEL 2)	(2.6) LOCAL AREA VOCATIONAL AND TECHNICAL EDUCATION PROGRAM (AS DEFINED BY) • OCCUPATIONAL FIELDS. • COURSES OF OCCUPATIONAL INSTRUCTION. (INPUT TO LEVEL 3)	(3.6) LOCAL AREA VOCATIONAL AND TECHNICAL EDUCATION PROGRAM • OCCUPATIONAL FIELDS. • COURSES OF OCCUPATIONAL INSTRUCTION. • RESOURCE REQUIREMENTS. • COST ESTIMATES AND FUNDING SOURCES. (LEVELS 2 & 3 ARE ITERATED)

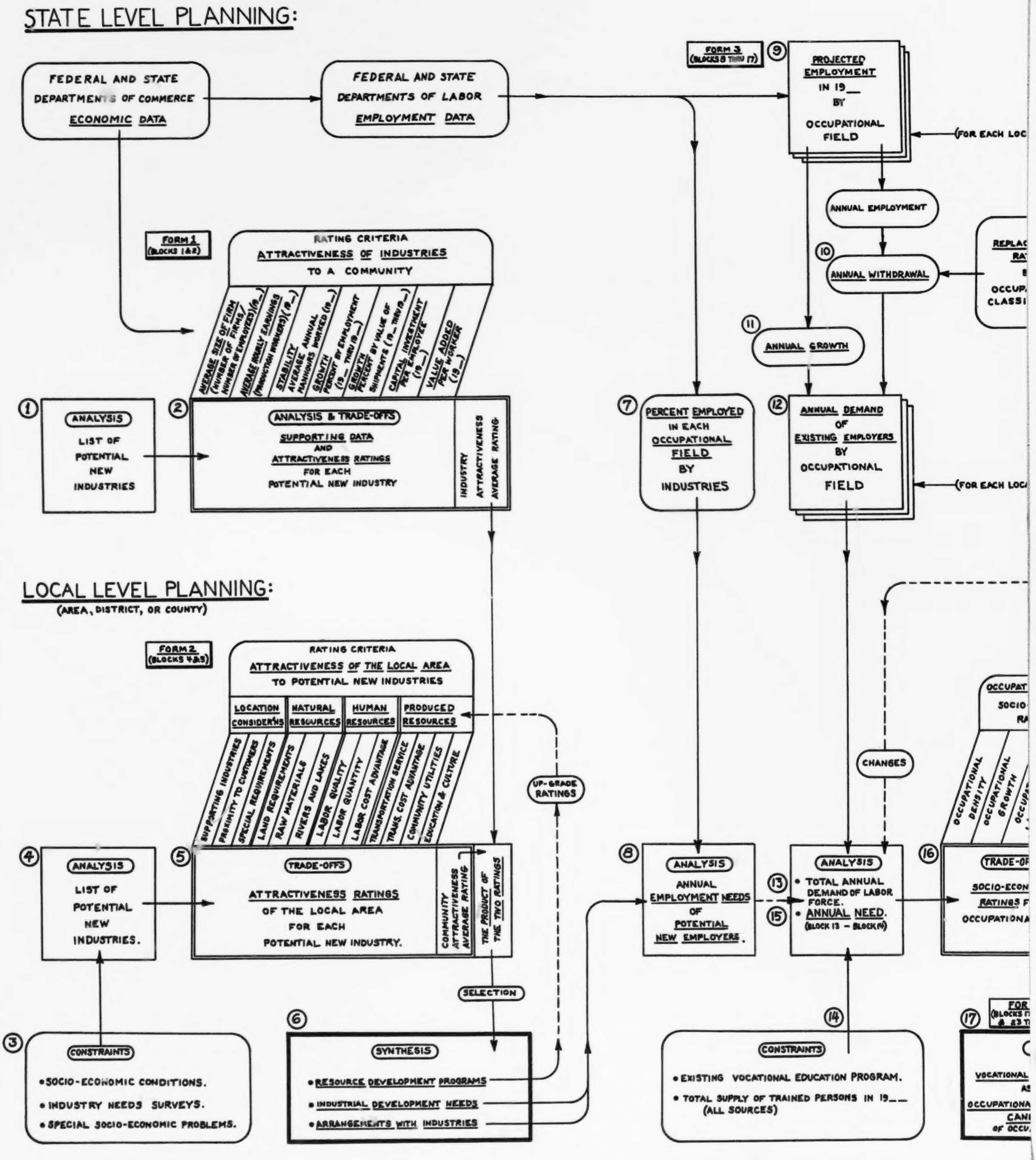
R.G.W.

PENNA. VOC. ED. STUDY -1968/9.

STATE/LOCAL VOCATIONAL EDUCATION

Ⓘ SOCIO-ECONOMIC PLANNING

Ⓘⓘ VOC. ED. PROGRAM PLANNING

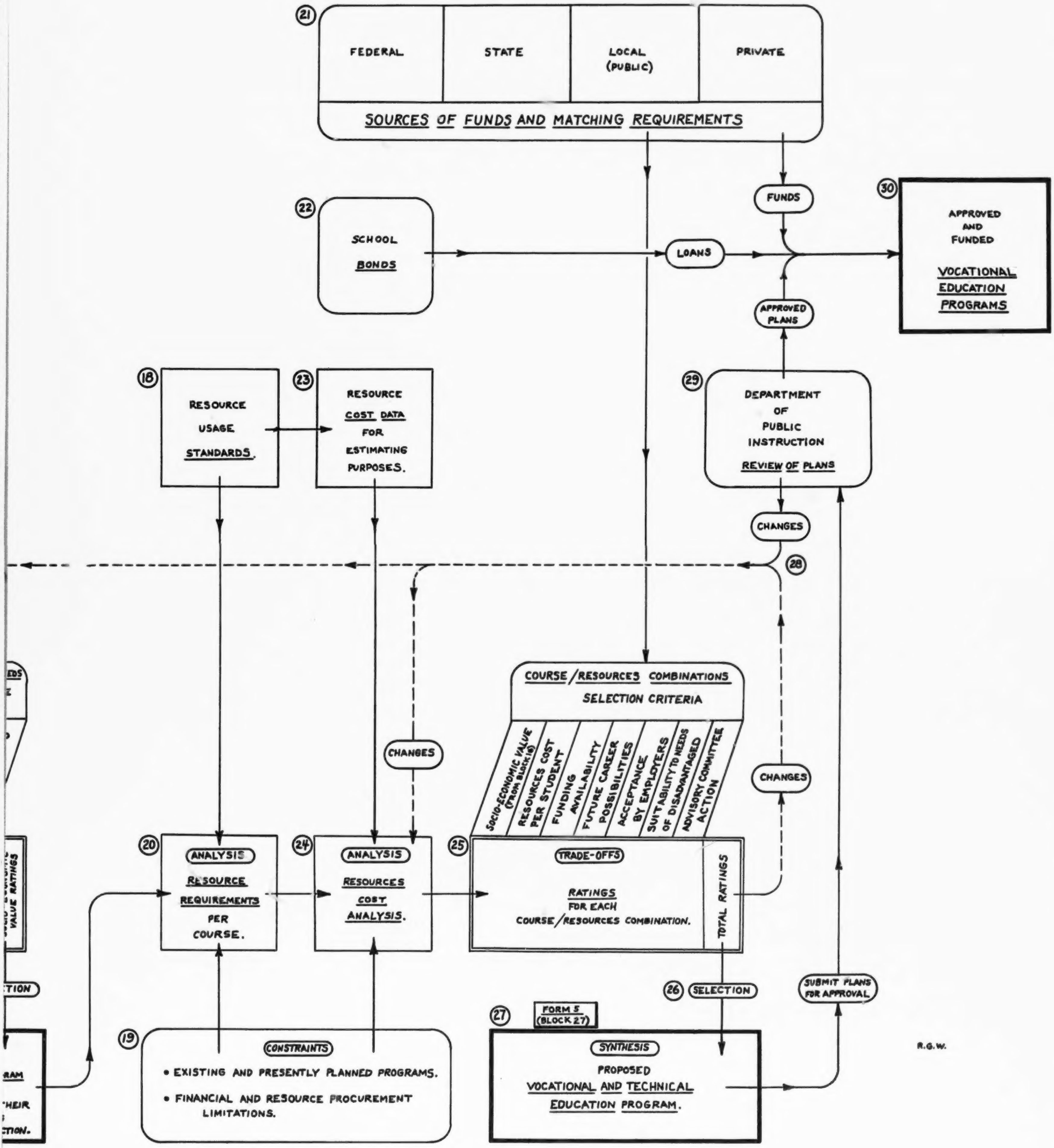

STATE LEVEL PLANNING:
FEDERAL AND STATE DEPARTMENTS OF COMMERCE ECONOMIC DATA
FEDERAL AND STATE DEPARTMENTS OF LABOR EMPLOYMENT DATA
FORM 1 (BLOCKS 1&2)
RATING CRITERIA ATTRACTIVENESS OF INDUSTRIES TO A COMMUNITY
AVERAGE SIZE OF FIRM (NUMBER OF FIRMS/ NUMBER OF EMPLOYEES)(19__)
AVERAGE HOURLY EARNINGS (PRODUCTION WORKERS)(19__)
STABILITY AVERAGE ANNUAL MANHOURS WORKED (19__)
GROWTH PERCENT BY EMPLOYMENT (19__ THRU 19__)
GROWTH PERCENT BY VALUE OF SHIPMENTS (19__ THRU 19__)
CAPITAL INVESTMENT PER EMPLOYEE (19__)
VALUE ADDED PER WORKER (19__)
①
ANALYSIS
LIST OF POTENTIAL NEW INDUSTRIES
②
ANALYSIS & TRADE-OFFS
SUPPORTING DATA AND ATTRACTIVENESS RATINGS FOR EACH POTENTIAL NEW INDUSTRY
INDUSTRY ATTRACTIVENESS AVERAGE RATING
LOCAL LEVEL PLANNING:
(AREA, DISTRICT, OR COUNTY)
FORM 2 (BLOCKS 4&5)
RATING CRITERIA ATTRACTIVENESS OF THE LOCAL AREA TO POTENTIAL NEW INDUSTRIES
LOCATION CONSIDER'NS
NATURAL RESOURCES
HUMAN RESOURCES
PRODUCED RESOURCES
SUPPORTING INDUSTRIES
PROXIMITY TO CUSTOMERS
SPECIAL REQUIREMENTS
LAND REQUIREMENTS
RAW MATERIALS
RIVERS AND LAKES
LABOR QUALITY
LABOR QUANTITY
LABOR COST ADVANTAGE
TRANSPORTATION SERVICE
TRANS. COST ADVANTAGE
COMMUNITY UTILITIES
EDUCATION & CULTURE
UP-GRADE RATINGS
④
ANALYSIS
LIST OF POTENTIAL NEW INDUSTRIES.
⑤
TRADE-OFFS
ATTRACTIVENESS RATINGS OF THE LOCAL AREA FOR EACH POTENTIAL NEW INDUSTRY.
COMMUNITY ATTRACTIVENESS AVERAGE RATING
THE PRODUCT OF THE TWO RATINGS
SELECTION
③
CONSTRAINTS
• SOCIO-ECONOMIC CONDITIONS.
• INDUSTRY NEEDS SURVEYS.
• SPECIAL SOCIO-ECONOMIC PROBLEMS.
⑥
SYNTHESIS
• RESOURCE DEVELOPMENT PROGRAMS
• INDUSTRIAL DEVELOPMENT NEEDS
• ARRANGEMENTS WITH INDUSTRIES
FORM 3 (BLOCKS 8 THRU 17)
⑨
PROJECTED EMPLOYMENT IN 19__ BY OCCUPATIONAL FIELD
(FOR EACH LOC
ANNUAL EMPLOYMENT
⑩
ANNUAL WITHDRAWAL
REPLAC RA E OCCUPA CLASSI
⑪
ANNUAL GROWTH
⑦
PERCENT EMPLOYED IN EACH OCCUPATIONAL FIELD BY INDUSTRIES
⑫
ANNUAL DEMAND OF EXISTING EMPLOYERS BY OCCUPATIONAL FIELD
(FOR EACH LOCA
CHANGES
OCCUPAT SOCIO- RA
OCCUPATIONAL DENSITY
OCCUPATIONAL GROWTH
OCCUPA
⑧
ANALYSIS
ANNUAL EMPLOYMENT NEEDS OF POTENTIAL NEW EMPLOYERS.
ANALYSIS
⑬ • TOTAL ANNUAL DEMAND OF LABOR FORCE.
⑮ • ANNUAL NEED. (BLOCK 13 - BLOCK 14)
⑯
TRADE-OF
SOCIO-ECON RATINGS F OCCUPATIONA
⑭
CONSTRAINTS
• EXISTING VOCATIONAL EDUCATION PROGRAM.
• TOTAL SUPPLY OF TRAINED PERSONS IN 19__ (ALL SOURCES)
⑰
FOR (BLOCKS 1 & 23 T
VOCATIONAL AS OCCUPATIONA CAN OF OCCU

GRAM PLANNING

CHART 3

APRIL 15, 1969.

(III) VOC. ED. RESOURCES PLANNING



21
FEDERAL
STATE
LOCAL (PUBLIC)
PRIVATE
SOURCES OF FUNDS AND MATCHING REQUIREMENTS
22
SCHOOL BONDS
LOANS
FUNDS
30
APPROVED AND FUNDED VOCATIONAL EDUCATION PROGRAMS
APPROVED PLANS
18
RESOURCE USAGE STANDARDS.
23
RESOURCE COST DATA FOR ESTIMATING PURPOSES.
29
DEPARTMENT OF PUBLIC INSTRUCTION REVIEW OF PLANS
CHANGES
28
COURSE/RESOURCES COMBINATIONS SELECTION CRITERIA
SOCIO-ECONOMIC VALUE (FROM BLOCK 16)
RESOURCES COST PER STUDENT
FUNDING AVAILABILITY
FUTURE CAREER POSSIBILITIES
ACCEPTANCE BY EMPLOYERS
SUITABILITY TO NEEDS OF DISADVANTAGED
ADVISORY COMMITTEE ACTION
CHANGES
CHANGES
VALUE RATINGS
20
ANALYSIS
RESOURCE REQUIREMENTS PER COURSE.
24
ANALYSIS
RESOURCES COST ANALYSIS.
25
TRADE-OFFS
RATINGS FOR EACH COURSE/RESOURCES COMBINATION.
TOTAL RATINGS
26
SELECTION
SUBMIT PLANS FOR APPROVAL
27
FORM 5 (BLOCK 27)
SYNTHESIS
PROPOSED VOCATIONAL AND TECHNICAL EDUCATION PROGRAM.
19
CONSTRAINTS
• EXISTING AND PRESENTLY PLANNED PROGRAMS.
• FINANCIAL AND RESOURCE PROCUREMENT LIMITATIONS.

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Resources Planning. The diagram is also divided horizontally into two organizational levels of planning with respect to the State and the local area (district or county), so that Chart 3 shows the interaction between the State and local area as the planning proceeds. It also shows that the State is in a position of leadership at every planning level, and that it initiates the planning by providing industry ratings, employment needs data, and educational policies for guidance to the local area planner.

This total systems approach also provides a unified decision-making process in the State. The selection criteria, shown in blocks 5, 16 and 25 of the flow diagram (Chart 3), are used both at the local level to form programs, and at the State level to review and approve or reject them. In this way, possible differences of opinion are narrowed down to the choice of candidate programs to evaluate, and to the subjective criteria used in the evaluation.

IMPLEMENTATION OF THE PLANNING PROCEDURE

A series of five planning forms have been designed to implement the systems philosophy previously described. When these forms are used according to the instructions, which follow, it is not necessary (although desirable) to understand the philosophy behind them. Of course systems planning can never be reduced to a purely mechanical procedure. The forms provided are work-sheets to record essential input data, the invention and decision process, and the final synthesized system. In most cases side studies will be conducted to support this main stream of planning activity.

PROBLEM DEFINITION

The description of the planning procedure, which follows, is illustrated in an application to vocational and technical education in Cumberland and Perry Counties in the Greater Harrisburg Labor Market Area. Although this example is somewhat limited, it should serve to illustrate the principles involved in the planning.

The planning process begins with a clear definition of the total problem. As previously stated, the first three steps required to define the problem are important, since they set the course of the rest of the planning and (later) of the evaluation. They include: formulation of the objectives, identification of the constraints, and the translation of these objectives and constraints into detailed requirements and measurable goals.

1. Formulation of Objectives

The following figure shows the objectives arranged in the same format as in blocks 1.1, 2.1 and 3.1 of Chart 2. In this application they are formulated at three levels: "basic objectives", which give the purpose of each level of planning; "general objectives", which give policy type objectives that do not lend themselves to the setting of quantitative goals; and "specific objectives", which can be translated into quantitative and measurable goals, and therefore are directly usable in the planning process. All of the objectives at the resources level of the example are "specific objectives", since they can all be translated into quantitative, measurable goals.

The formulation of objectives is a more difficult task than it may appear to be in the example (Figure 28). A few comments on the "objectives philosophy" are believed to be appropriate:

a. The objectives should be stated concisely, and contain only one thought or facet of the total problem. In this way a one-to-one relationship can be established between the specific objectives and the measurable goals. For example, an objective such as: "To make vocational and technical education an economic asset" is not a "specific objective", since it contains a number of facets and therefore cannot be translated into a single measurable goal. However, the desire expressed by this objective can be put in the form of a number of specific objectives at the Resources Planning level, such as:

   - To provide persons who are highly qualified with respect to acquired knowledge and skills.
   - To provide persons who are highly qualified with respect to performance in industry.
   - To provide persons who are highly qualified with respect to advancement in their field.

b. The objectives represent management philosophy, and therefore must be consistent with current or planned organizational capabilities. Objectives are often formulated where there is no real intention of implementing them in the foreseeable future. Such wishes, in the form of objectives, sometimes serve a purpose to stimulate the development of new management policies--but they have no role in the systems planning approach until the new policies are established and funding is planned or provided.

c. The objective statements should not contain abstract terms, such as "socioeconomic value" or "social and civic competence", unless they are defined in terms of objective or subjective ratings. For example, "socioeconomic value" is defined by means of the selection criteria shown in block 16 of Chart 3.

d. The objectives must be placed at the appropriate planning level in which the work necessary to achieve the objective can be accomplished. Each level of planning consists of a complete cycle of steps, as previously described, so that

FIGURE 28

VOCATIONAL AND TECHNICAL EDUCATION PROGRAM PLANNING CYCLES APPLIED TO CUMBERLAND-PERRY COUNTIES AREA

	1. SOCIO-ECONOMIC PLANNING	2. VOCATIONAL EDUCATION PROGRAM PLANNING	3. RESOURCES PLANNING
PROBLEM DEFINING	1.1 OBJECTIVES	2.1 OBJECTIVES	3.1 OBJECTIVES
	1.1.1 BASIC OBJECTIVE:	2.1.1 BASIC OBJECTIVE:	3.1.1 BASIC OBJECTIVE:
	To improve the competitive posture of the community with respect to the attraction of desirable new industries.	To institute Vocational Education programs (as defined by occupational fields and courses) which are of high socio-economic value to the community and existing industries.	To organize and implement Vocational Education programs. (as defined by course/resources combinations) which are the most cost/effective in meeting the occupational needs of students and their potential employers.
	1.1.2 GENERAL OBJECTIVES:	2.1.2 GENERAL OBJECTIVES:	3.1.2 SPECIFIC OBJECTIVES (related to goals):
	A. To assist in attracting potential new fast growing industries to the community.	A. To institute training opportunities for persons of all ages.	A. To provide persons who are highly qualified with respect to acquire knowledge and skills.
	B. To assist in diversifying industry in the community by promoting new industries.	B. To meet the trained manpower needs of existing employers.	B. To provide persons who are highly qualified with respect to performance in industry.
	C. To assist in increasing the number of higher paying job opportunities in the community by promoting new industries.	C. To meet the employment needs of the socio-economic disadvantaged.	C. To provide persons who are highly qualified with respect to advancement in their field.
	D. To assist in retaining able manpower in the community by promoting new industries.	D. To assist in increasing the number of higher paying job opportunities in the community by promoting growth of existing industries.	D. To provide graduates of high quality within a reasonable time.
	E. To assist in attracting new industry with qualities such as: employment stability and satisfactory working conditions.	E. To assist in retaining able manpower in the community by promotion of growth of existing industries.	E. To provide graduates of high quality at a reasonable cost.
	(continued)	(continued)	(continued)

FIGURE 28 (CONT'D.)

VOCATIONAL AND TECHNICAL EDUCATION PROGRAM PLANNING CYCLES APPLIED TO CUMBERLAND-PERRY COUNTIES AREA

PROBLEM DEFINING

1. SOCIO-ECONOMIC PLANNING	2. VOCATIONAL EDUCATION PROGRAM PLANNING	3. RESOURCES PLANNING
(continued)	(continued)	(continued)
1.1.3 SPECIFIC OBJECTIVE (related to goals): A. To anticipate the needs of new industries in the community with respect to supplying suitable quantity of manpower.	2.1.3 SPECIFIC OBJECTIVE (related to goals): A. To anticipate the needs of existing industries by supplying a sufficient quantity of trained manpower to meet annual withdrawals. B. To meet the needs of existing industries by supplying a sufficient quantity of trained manpower to meet industry growth requirements. C. To assist in providing suitable employment for the socio-economic disadvantaged.	F. To provide course/resource combinations which are attractive to students. G. To provide graduates with civic and social competence.

each level is a package of work or group of tasks which is usually accomplished by different agencies or persons. Therefore, each agency or person should be given only objectives and goals which can be accomplished within their scope of activity. For example, it would not be appropriate to put objectives related to the attractiveness of courses at the Program Planning Level (Level 2, Charts 2 and 3), since the course cannot be completely described and its attractiveness estimated until the resources to be applied are defined.

2. Identification of Constraints

After the problem has been stated generally in the form of concise objectives, the next step is to identify the constraints relative to these objectives at each level of planning (Figure 29). These constraints include both limitations and capabilities in such categories as:

a. Policies, laws and regulations. Also traditions and prevailing attitudes, if they are considered binding.

b. Financial considerations, such as: assets, liabilities, capabilities and limitations.

c. Timing considerations, such as: implementation time, priorities and existing schedule commitments.

d. Physical considerations, such as: location, environment and natural resources.

e. Human considerations, such as: human resources, aptitudes, attitudes and special problems as those involving socio-economic disadvantaged and handicapped people.

f. Produced resources considerations, such as: transportation, existing schools, and cultural facilities.

The following four comments, relative to the formulation of objectives, also apply to the identification and presentation of the constraints:

- Each constraint statement should be concise and express only one facet of the problem environment.

- The constraints should be related to one or more objectives (which in turn must be consistent with management policies).

FIGURE 29

CONSTRAINTS - - A "shopping list" for use in identifying possible constraints applicable to a particular local area.

MAJOR CATEGORIES OF CONSTRAINTS	1. SOCIO-ECONOMIC PLANNING (pertaining to potential new industries)	2. VOCATIONAL EDUCATION PROGRAM PLANNING (pertaining to occupations and courses)	3. RESOURCES PLANNING (pertaining to resource combinations and costs)
(a) POLICIES Laws Regulations Traditions Community attitudes Political considerations	(1-a) Types of industry allowed such as "clean industry only". Zoning regulations. Community "image" desired.	(2-a) Community "image" desired.	(3-a) Teacher-certification requirements. Minimum classroom sizes.
(b) FINANCIAL CONSIDERATIONS Assets Liabilities Capabilities Limitations	(1-b) Financial assistance limits. Risk sharing capabilities. Rental incentives. Labor cost advantages. Transportation cost advantages. Community utilities cost advantages. Tax incentives	(2-b) (NONE --financial constraints cannot be applied until the resources and costs are determined at level 3)	(3-b) School budget limitations. Taxation limitations relative to education. National, State and local funds available. Private funding available. School bond limitations. Resource unit costs.
(continued)	(continued)	(continued)	(continued)

FIGURE 29 (CONT'D.)

CONSTRAINTS -- A "shopping list" for use in identifying possible constraints applicable to a particular local area.

MAJOR CATEGORIES OF CONSTRAINTS	1. SOCIO-ECONOMIC PLANNING (pertaining to potential new industries)	2. VOCATIONAL EDUCATION PROGRAM PLANNING (pertaining to occupations and courses)	3. RESOURCES PLANNING (pertaining to resource combinations and costs)
(continued)	(continued)	(continued)	(continued)
(c) TIMING CONSIDERATIONS Priorities Implementation time Schedule Commitments	(1-c) Priorities Schedule of commitments.	(2-c) Priorities Schedule of commitments	(3-c) Resource procurement time limitations such as: - Building time, - Equipment procurement time, - Teacher training & recruitment time. Established schedules and priorities.
(d) PHYSICAL CONSIDERATIONS Location Environment Natural Resources	(1-d) Available land. Raw materials considerations. Rivers and lakes availability. Pollution regulations. Proximity to customer market. The present industry mix in the categories of prime and supporting industries	(2-d) NONE--physical constraints cannot be applied until the resources are determined at level 3)	(3-d) School location capabilities and limitations due to land availability and cost. Building space limitations.

FIGURE 29 (CONT'D.)

CONSTRAINTS -- A "shopping list" for use in identifying possible constraints applicable to a particular local area.

MAJOR CATEGORIES OF CONSTRAINTS	1. SOCIO-ECONOMIC PLANNING (pertaining to potential new industries)	2. VOCATIONAL EDUCATION PROGRAM PLANNING (pertaining to occupations and courses)	3. RESOURCES PLANNING (pertaining to resource combinations and costs)
(continued)	(continued)	(continued)	(continued)
(e) HUMAN CONSIDERATIONS Resources Aptitudes Attitudes Special problems	(1-e) No industries with a high female/male ratio. Labor quantity available per occupational category. Labor quality available per occupational category. Special socio-economic problems.	(2-e) Total supply of trained persons. Occupational and course preferences of the students. Total supply of students.	(3-e) School location limitations due to individual and community preferences. Minimum class size for a particular occupational category. Special student needs. Integration considerations.
(f) PRODUCED RESOURCES CONSIDERATIONS Transportation Schools Cultural facilities	(1-f) Transportation service available. Community utilities available. Community facilities available. Education facilities available. Cultural facilities available.	(2-f) Existing vocational education programs in terms of occupations covered and the courses applied.	(3-f) School location limitations due to transportation. Existing and presently planned programs in terms of courses and resources.

- The constraints should be expressed in concrete terms as much as possible.

- The constraints must be placed at the appropriate planning level.

The identification and organization of the constraints or environment of the problem represents the bulk of the work in the problem-defining phase of the planning. Many plans are really only surveys or studies of existing conditions and problems (and thus, in systems planning terminology, are "constraints"). If a thorough job is done in identifying the constraints, it aids and reduces the work in the problem-solving phase of the planning. The constraints are used not only as a guide to the invention of candidate solutions to a problem, but also as a means of eliminating many candidate solutions without further analysis and trade-offs. Constraints are related to criteria but they are absolute. Criteria are applied to determine the relative merit of candidate solutions to a problem.

It is not within the scope of this report to make a "constraints" study of the socioeconomic and vocational education environment in the Cumberland-Perry Counties area. A general matrix has been prepared, which can be used as a guide in the identification and organization of the constraints in any county. The items listed in Levels 1, 2, and 3 of Figure 29 are typical of the constraints to be identified.

3. Translation

The final step in the problem definition process consists of detailed statements and requirements relative to the problem, which require the consideration of management policies and interpretations. This translation step may include:

a. Interpretations of the objectives in regard to emphasis or de-emphasis.

b. The projections of the constraints into the future.

c. The translation of "specific objectives" into measurable goals. In order to set goals it is necessary to determine how the measurements are going to be made. Thus, some evaluation planning must be done in parallel with the initial system planning, as will be described later under the heading: "System Planning and Evaluation". Goals have not be set in this study, since evaluation planning is beyond its scope--except for the general description of the approach given later.

After the problem has been defined, we are ready to begin the problem-solving activities: analysis, trade-offs and synthesis, using Forms 1 through 4 to record the results of this work.

FORM 1--INDUSTRY RATINGS

Basically, there are three courses of action that a local area (district or county) can take in regard to its economic development: a passive approach ("answering the mail"), a promotional approach or a planned promotional approach. The purpose of the first level of this planning procedure is to support the third course of action. In this planned approach, the choice of a vocational and technical education curriculum can be an important factor in the attraction of potential new industries to the area, provided the needs of these industries can be anticipated. This requires that the educational program be biased in favor of the desired new industries.

The end product of the first level of planning is an economic development plan for each local area relative to the vocational and technical education needs. This plan is based on information and opinions representing two points-of-view, which are: (1) the attractiveness of potential new industries to a typical local area, and (2) the attractiveness of the particular local area to the same potential new industries. In other words, the plan takes into consideration, not only the desires of the local area for industrial development, but also its competitive posture with respect to these desires.

Form 1, which is represented by blocks 1 and 2 on the flow diagram (Chart 3), is used by the State to record Department of Commerce data pertinent to the rating of the attractiveness of potential new industries to a typical community.

In this application, seven criteria were used to rate industry attractiveness. In the example provided on a sample Form 1, the criteria data were obtained from the document: "Industry Profiles, 1958-1966", published by the U. S. Department of Commerce, Business and Defense Services Administration. The data applicable to each criterion was prepared as follows:

1. Average size of firm - Use 1963 total number of employees (Table 1) divided by the 1963 number of companies (Table 2).

2. Average hourly earnings - Use 1966 wages per production worker (Table 1).

3. Stability - Use 1966 annual man-hours per production worker (Table 1).

4. Growth - Divide the 1966 employment by the 1958 employment (Table 1).

5. Growth - Use value of shipments ratio (1966/1958) (Table 5).

6. Capital Investment per Employee - Divide the 1966 capital expenditure by the total number employed (Table 1).

7. Value Added per Worker - Use 1966 value added per production worker (Table 1).

INDUSTRY RATINGS

(SHEET 1 OF 2) **FORM 1**

DETERMINE RATINGS AS FOLLOWS:

1. DIVIDE THE TOTAL RANGE OF DATA IN EACH COLUMN INTO 10 PARTS.
2. RANK EACH PART WITH 1 ASSIGNED TO THE LOWEST PART, AND 10 TO THE HIGHEST.
3. PUT THE ASSIGNED NUMBER IN THE RATING COLUMN.
4. ADD THE RATINGS FOR EACH POTENTIAL NEW INDUSTRY.
5. DIVIDE THE TOTAL OF THE RATINGS BY THE NUMBER OF CRITERIA USED.

LINE NUMBER	POTENTIAL NEW INDUSTRIES	RATING CRITERIA--ATTRACTIVENESS OF POTENTIAL NEW INDUSTRIES														TOTAL OF THE RATINGS	AVERAGE RATING
		AVERAGE SIZE OF FIRM (NUMBER OF EMPLOYEES/NUMBER OF FIRMS)		AVERAGE HOURLY EARNINGS (PRODUCTION WORKERS)		STABILITY (AVERAGE ANNUAL HOURS WORKED)		GROWTH (PERCENT CHANGE IN EMPLOYMENT) (+ OR -)		GROWTH (PERCENT CHANGE IN VALUE OF SHIPMENTS) (+ OR -)		CAPITAL INVESTMENT PER EMPLOYEE		VALUE ADDED PER WORKER			
		19 63 DATA	RATING	19 66 DATA	RATING	19 66 DATA	RATING	19 58 THRU 19 66 DATA	RATING	19 58 THRU 1966 DATA	RATING	19 66 DATA	RATING	19 66 DATA	RATING		
1	Ammunition, n.e.c.	856	9	$2.82	5	1994	4	3.75	10	5.80	10	$319	1	12000	2	41	5.6
2	Cath. Ray Pic. Tubes	73	1	2.60	4	2181	8	2.89	7	5.10	9	2928	7	24100	4	40	5.5
3	Semiconductors	655	7	2.32	3	1999	4	3.52	10	4.49	7	1503	3	14100	2	36	5.1
4	Computer & Rel. Mach.	452	5	3.19	6	2085	6	1.68	3	4.38	7	1191	3	34800	5	35	5
5	Guns, Howitzers, Mortars	409	4	2.61	4	2038	5	2.98	6	4.15	6	766	2	16800	2	29	4.1
6	Tufted Carpets, Rugs	109	1	1.92	2	2190	9	2.45	6	3.80	5	954	2	16900	2	27	3.6
7	Sm. Arms. 30 mm	192	2	2.87	5	2116	7	1.92	4	3.46	4	687	1	17200	2	25	3.4
8	Elect. Components	101	1	2.16	3	2018	4	2.15	5	3.35	4	734	2	13300	2	21	3
9	Primary Nonferr. Met.	158	2	3.29	6	2142	7	2.74	7	3.33	4	4610	10	25100	4	40	5.5
10	Optical Inst.&Lens.	44	1	3.09	6	2102	6	2.43	6	3.23	3	741	2	20800	3	27	3.6
11	Nonferrous Forgings	185	2	3.51	7	2209	9	2.06	4	3.16	3	2763	6	19900	3	34	4.6
12	R.R. and Rapid Transit Cars	45	1	3.49	7	2009	4	1.80	3	3.02	3	802	2	17800	2	22	3.1
13	Ind.Trucks & Tractors	57	1	3.08	6	2126	7	1.78	3	2.94	3	701	1	22700	3	24	3.3
14	Primary Metal n.e.c.	21	1	2.91	5	2161	8	1.83	4	2.83	2	1484	3	18900	3	26	3.5
15	Sm. Arms Ammunition	287	3	3.27	6	2090	6	2.12	5	2.79	2	430	1	14000	2	25	3.4
16	Surg. & Med. Inst.	59	1	2.40	3	2004	4	1.71	3	2.76	2	760	2	17100	2	17	2.3
17	Photographic Equip.	120	2	3.46	7	1973	3	1.40	2	2.73	2	1760	4	41200	7	27	3.6
18	Stenciling and Marking Devices	13	1	2.63	4	1951	2	1.60	3	2.71	2	289	1	23000	3	16	2.2
19	Metal Cutting Mach.	77	1	3.45	7	2240	10	1.51	2	2.69	2	938	2	22300	3	27	3.6
20	Radio TV Comm. Equip.	387	4	3.19	6	1995	4	2.44	6	2.65	2	498	1	23300	3	26	3.5
21	Radio TV Rec. Sets	252	3	2.38	3	1949	2	1.96	4	2.64	2	930	2	15300	2	18	2.4
22	Fabric Finishing	11	1	2.36	3	2230	10	1.54	2	2.61	2	1317	3	12200	2	23	3.2
23	Household Furn.n.e.c.	27	1	1.92	2	2034	5	2.09	4	2.55	1	338	1	10400	1	15	2.1
24	Industrial Controls	77	1	2.96	5	2094	6	1.69	3	2.54	1	686	1	22800	3	20	2.8
25	Nonferr. Wire Drawing	26	1	2.98	5	2164	8	1.33	2	2.53	1	786	2	24800	4	23	3.2
26	X-Ray & Therap. App.	107	1	3.05	6	2066	5	1.59	3	2.53	1	548	1	30800	5	22	3.1
27	Textile-Throwing & Winding Mill	80	1	1.69	1	2014	4	1.37	2	2.51	1	893	2	9600	1	12	1.5
28	Transportation Eq.n.e.c.	15	1	2.21	3	1967	3	1.99	4	2.50	1	826	2	12200	2	16	2.2
29	Fab. Metal Prod.	22	1	2.62	4	2002	4	1.85	4	2.50	1	850	2	14800	2	18	2.4
30	Plastics Products	38	1	2.24	3	2073	6	1.93	4	2.49	1	1467	3	13800	2	20	2.8

PREPARED BY: J. Ross DATE: 2/15/69

INDUSTRY RATINGS

(SHEET 2 OF 2) **FORM 1**

DETERMINE RATINGS AS FOLLOWS:

1. DIVIDE THE TOTAL RANGE OF DATA IN EACH COLUMN INTO 10 PARTS.
2. RANK EACH PART WITH 1 ASSIGNED TO THE LOWEST PART, AND 10 TO THE HIGHEST.
3. PUT THE ASSIGNED NUMBER IN THE RATING COLUMN.
4. ADD THE RATINGS FOR EACH POTENTIAL NEW INDUSTRY.
5. DIVIDE THE TOTAL OF THE RATINGS BY THE NUMBER OF CRITERIA USED.

RATING CRITERIA -- ATTRACTIVENESS OF POTENTIAL NEW INDUSTRIES

LINE NUMBER	POTENTIAL NEW INDUSTRIES	AVERAGE SIZE OF FIRM (NUMBER OF EMPLOYEES/ NUMBER OF FIRMS)		AVERAGE HOURLY EARNINGS (PRODUCTION WORKERS)		STABILITY (AVERAGE ANNUAL HOURS WORKED)		GROWTH (PERCENT CHANGE IN EMPLOYMENT) (+ OR –)		GROWTH (PERCENT CHANGE IN VALUE OF SHIPMENTS (+ OR –)		CAPITAL INVESTMENT PER EMPLOYEE		VALUE ADDED PER WORKER		TOTAL OF THE RATINGS	AVERAGE RATING
		19 63 DATA	RATING	19 66 DATA	RATING	19 66 DATA	RATING	19 58 THRU 19 66 DATA	RATING	19 58 THRU 19 66 DATA	RATING	19 66 DATA	RATING	19 66 DATA	RATING		
31	Coated Fab. Not. Rubb.	119	2	2.75	5	2167	8	1.74	3	2.41	1	1612	4	17800	2	25	3.4
32	Mach. Tool Access.	56	1	3.14	6	2231	10	1.35	2	2.41	1	949	2	21600	3	25	3.4
33	Metal Coating Engr.	16	1	2.45	4	2001	4	1.61	3	2.39	1	710	1	12800	2	16	2.2
34	Truck Trailers	111	1	2.87	5	1965	3	1.79	3	2.38	1	907	2	13800	2	17	2.3
35	Ind. Patterns	8	1	4.48	10	2102	6	1.37	2	2.37	1	N.A.		17500	2	22	3.4
36	Hoists,Cranes,Monorail	79	1	3.42	7	2144	7	1.73	3	2.37	1	612	1	20200	3	23	3.2
37	Trailer Coaches	62	1	2.38	3	1902	1	2.06	4	2.36	1	1085	2	11100	1	13	1.6
38	Sec.Metal Nonferrous	33	1	2.82	5	2111	7	1.16	1	2.36	1	1766	4	23500	3	22	3.1
39	Copper Roll & Drawing	48	1	3.38	7	2162	8	1.01	1	2.35	1	1466	3	27000	4	25	3.4
40	Knit Fabric Mills	48	1	2.04	2	2153	8	1.74	3	2.35	1	1860	4	14600	2	21	3
41	Truck & Bus Bodies	41	1	2.60	4	2084	6	1.58	3	2.33	1	1216	3	12500	2	20	2.8
42	Serv. Ind. Mach.	30	1	2.83	5	2157	8	1.73	3	2.33	1	4267	10	23900	3	31	4.3
43	Men's Slacks	110	1	1.58	1	1874	1	1.76	3	2.30	1	1584	3	5800	1	11	1.4
44	Toilet Articles	50	1	2.44	3	1965	3	1.37	2	2.29	1	825	2	66300	10	22	3.1
45	Metal Form Mach.Tool	60	1	3.46	7	2268	10	1.26	1	2.29	1	972	2	20700	3	25	3.4
46	Spec. Ind. Mach.	45	1	3.10	6	2225	9	1.36	2	2.27	1	986	2	21000	3	24	3.3
47	Typewriters	1060	10	2.79	5	2048	5	1.10	1	2.24	1	892	2	25000	4	28	3.7
48	Gen. Ind. Machinery	45	1	2.96	5	2073	6	1.46	2	2.23	1	839	2	25000	4	21	3
49	Metal Coat. Engr.	77	1	2.45	4	2240	10	1.61	3	2.23	1	938	2	22300	3	24	3.3
50	Engine Elect. Equip.	222	3	3.10	6	2090	6	1.37	2	2.21	1	732	2	17500	2	22	3.1

PREPARED BY: J. Ross DATE: 2/15/69

The data for each criterion are used to determine the rating of each potential new industry with respect to this criterion. These ratings are determined as follows:

- Divide the total range of data in each column into ten parts.
- Rank each part with a rating of "1" assigned to the lowest part, and "10" to the highest.
- Insert the assigned number in the rating column.

For example, referring to the column of data on the "Average Size of Firm": the largest number in the column is 1060 in line 47 and the smallest is 8 in line 35. The difference is 1052, and 1/10 of 1052 is 105.2. The scale for determining the ratings for each number in the data column is calculated by adding 105.2 to the lowest number and to each succeeding number, as follows:

8.0 -- 113.1 rates 1
113.2 -- 218.3 rates 2
218.4 -- 323.5 rates 3
323.6 -- 428.7 rates 4
428.8 -- 533.9 rates 5
534.0 -- 639.1 rates 6
639.2 -- 744.3 rates 7
744.4 -- 849.5 rates 8
849.6 -- 954.7 rates 9
954.8 -- 1060.0 rates 10

In this industry rating chart, all criteria have been assumed to have equal weight. Note, however, that "growth" has an effective rating twice that of other criteria, because it is represented by two criteria: percent change in employment and percent change in value of shipments. In the case of negative growth data, the negative limit is added to the positive limit to determine the total range to be divided into equal parts.

The ratings for each criteria are added and then divided by the number of criteria used to get the average ratings. This information prepared at the State level, is then used in conjunction with Form 2 by the local level planners (area, district or county) to construct a socioeconomic plan for use in vocational education program planning.

FORM 2--COMMUNITY RATINGS

The socioeconomic planning at the local level (area, district or county) begins with the identification of the constraints, such as the existing socioeconomic conditions, industry needs, and special problems (Block 3 of Chart 3). A list of potential new industries for the local area is then prepared which uses the list from Form 1, except as limited by the information shown in the first column of the "Constraints" chart listed in Figure 29 relating to Problem Definition.

The groups and the industries listed on Form 2 are representative of a more complete list that would be required for a local area industrial development plan. The sample list was composed of the following types of industries on Form 1:

A The five fastest growing manufacturing industries in the U.S.A.

B Six of the fastest growing manufacturing industries already in the Cumberland-Perry Counties area, as listed in the 1968 Pennsylvania Industrial Directory

C Four fast growing industries identified by the representatives of industrial development organizations in the Greater Harrisburg Labor Market Area

Also, inasmuch as manufacturing employment in the Cumberland-Perry Counties area is a relatively small portion of the total labor force, the following additional types of industries are listed in order to embrace the broad spectrum of employment in the local area:

D Three major service industries, namely, Health, Hotel and Restaurant and Recreation

E Construction Industry

F Transportation, Warehousing and Distribution

G Agriculture

The potential new industries for the local area were rated on the basis of criteria shown on Form 2. The Industry Ratings on Form 1 are "objective" and are determined arithmetically from the data. The Community Ratings on Form 2, however, are "subjective" and represent the opinions of the planner on the attractiveness of the community to potential new industries. The ratings were added to Form 2 as follows:

1. Enter attractiveness ratings 1 to 10 in each block based on the following scale:

Very low	1 or 2
Low	3 or 4
Moderate	4 or 6
High	7 or 8
Very High	9 or 10

2. Enter a dash if a criterion is not applied.

3. Enter the average rating in the "Form 2" column.

4. Enter the average ratings from the "Form 1" chart in the "Form 1" column of Form 2.

5. Multiply the two ratings together to get the summary rating of each potential new industry.

The industry rating chart (Form 1) represents the economic desires of the community relative to potential new industries, and the community rating chart (Form 2) represents the capability of the community to attract the new industries. Therefore, this relationship between desire and capability for a potential new industry may be shown on a rating table as follows:

RELATIONSHIP BETWEEN COMMUNITY DESIRE AND CAPABILITY

DESIRE RATING
(Attractiveness of
industries to a typical
community--Form 1)

10	10	20	30	40	50	60	70	80	90	100
9	9	18	27	36	45	54	63	72	81	90
8	8	16	24	32	40	48	56	64	72	80
7	7	14	21	28	35	42	49	56	63	70
6	6	12	18	24	30	36	42	48	54	60
5	5	10	15	20	25	30	35	40	45	50
4	4	8	12	16	20	24	28	32	36	40
3	3	6	9	12	15	18	21	24	27	30
2	2	4	6	8	10	12	14	16	18	20
1	1	2	3	4	5	6	7	8	9	10
	1	2	3	4	5	6	7	8	9	10

CAPABILITY RATING
(Attractiveness of local area to
potential new industries--Form 2)

The industries preferred are those which have a high rating of attractiveness to the community, and in which the communities are highly attractive to the preferred industries. The product of the two ratings (rather than the sum) thus expresses this relationship between desire and capability, as is shown, in the above table. For example, in line number 2, the attractiveness rating of the Cathode Ray Picture Tube industry is 7.1. This rating was brought over from Form 1 and recorded on Form 2. The average rating for the attractiveness of the Cumberland-Perry Counties area to this potential new industry is 5.6. The product of the two ratings is 40. Note that the Cathode Ray Picture Tube industry is among the highest rated on Charts 1 and 2, because it is attractive as a new growth industry and the local area is in a good competitive position to attract it.

Although an arithmetic process is used to determine the rating of each potential new industry, this rating is only a guide for the decision-maker. It is a mechanical means of considering relative values of all known factors, both objective and subjective, which enter into the decision, and to ensure that all factors are given due consideration. The decisions are made after reviewing the ratings, and they may differ from those indicated by the ratings. In such cases the reason for the decision should be given. The selected industries are checked in the "selection" column of Form 2.

The selected list of potential new industries for the local area is used to synthesize a socioeconomic development plan relative to vocational education, as is represented by Block 6 of the flow diagram, Chart 3. This development plan may also define resource development programs to improve the attractiveness of the local area with respect to the desired industries, i.e., to improve its competitive position. Any arrangements with new industries for special manpower training will also be included in the local socioeconomic development plan.

COMMUNITY RATINGS

(SHEET 1 OF 1) **FORM 2**

INSTRUCTIONS:
1. ENTER RATINGS 1 TO 10 IN EACH BLOCK.
2. ENTER A DASH IF CRITERION IS NOT APPLIED.
3. ENTER THE AVERAGE RATING IN THE "FORM 2" COLUMN(*)
4. ENTER THE AVERAGE RATINGS FROM FORM 1 IN THE "FORM 1" COLUMN.
5. MULTIPLY THE TWO AVERAGE RATINGS TOGETHER.
6. SELECT POTENTIAL NEW INDUSTRIES ON THE BASIS OF THE RATINGS.

RATING CRITERIA--ATTRACTIVENESS OF THE COMMUNITY TO POTENTIAL NEW INDUSTRIES

LINE NUMBER	POTENTIAL NEW INDUSTRIES	LOCATION CONSIDERATIONS			NATURAL RESOURCES			HUMAN RESOURCES			PRODUCED RESOURCES				OTHER	AVERAGE RATINGS FORM 2 *	AVERAGE RATINGS FORM 1		SELECTION
		SUPPORTING INDUSTRIES	PROXIMITY TO CUSTOMERS	SPECIAL REQUIREMENTS	LAND REQUIREMENTS	RAW MATERIALS	RIVERS AND LAKES	LABOR QUALITY	LABOR QUANTITY	LABOR COST ADVANTAGE	TRANSPORTATION SERVICE	TRANSPORTATION COST ADVANTAGE	COMMUNITY UTILITIES	EDUCATION AND CULTURE		ATTRACTIVENESS OF COMMUNITY	ATTRACTIVENESS OF INDUSTRIES	MULTIPLICATION OF AVERAGE RATINGS	
A	THE FIVE HIGHEST RATED MFG. INDUSTRIES AMONG THE 50 FASTEST GROWING IN U.S.A.																		
1	Ammunition, n.e.c.	8	-	-	-	8	-	5	7	-	9	8	9	3		7.1	5.6	40	
2	Cath. Ray Pic. Tubes	5	-	-	-	7	-	8	8	-	8	-	5	8		7	5.5	39	
3	Semi-conductors	-	-	-	-	-	-	8	7	-	9	8	7	8		7.5	5.1	38	
4	Comput. & Rel. Mach.	7	8	-	-	-	-	9	8	-	5	8	7	9		7.5	5	38	
5	Prim. Nonferr. Met.	6	7	9	8	10	-	5	6	-	7	6	9	4		7	5.5	39	
B	SIX OF THE 50 FASTEST GROWING MFG. INDUSTRIES EXISTING IN CUMBERLAND-PERRY COUNTIES																		
1	Tuft. Carpets, Rugs	5	8	-	-	7	-	4	7	8	9	7	9	9		7.3	3.6	26	
2	Electronc. Compon.	4	6	-	-	4	-	8	5	8	8	7	9	8		6.7	3	20	
3	R.R. & Rapid Transit Cars	6	7	9	-	-	-	6	6	4	9	5	8	6		6.6	3.1	20	
4	Plastic Products	7	5	-	-	-	-	5	5	3	8	5	7	6		5.6	2.8	16	
5	Truck & Bus Bodies	7	7	6	5	-	-	6	5	3	8	5	7	5		5.9	2.8	17	
6	Spec. Ind. Mach.	9	8	-	-	-	-	8	6	3	6	6	9	5		6.6	4.6	30	
C	FOUR FASTEST GROWING MFG. INDUSTRIES IN CUMBERLAND-PERRY NOT INCLUDED ABOVE																		
1	Prepared Feeds	3	9	-	6	8	-	6	7	5	8	7	9	4		6.6	3.7	24	
2	Rub. & Misc. Prod.	8	8	-	-	-	-	7	8	6	8	7	9	7		7.5	3.2	24	
3	Fabr. Metal Prods.	8	8	-	5	8	-	8	8	4	9	9	8	6		7.4	2.4	18	
4	Mach. Except Elect.	8	8	-	-	8	-	8	8	4	8	7	8	5		7.2	5.4	39	
D	THREE MAJOR SERVICE IND. CLASSIFICATIONS IN CUMBERLAND-PERRY COUNTIES																		
1	Health	6	9	7	7	-	6	8	7	3	5	-	8	9		6.9	5.6	39	
2	Hotel & Restaurant	9	9	-	-	-	-	4	6	5	-	-	5	5		6.1	4.1	25	
3	Recreation	-	5	9	10	-	10	4	9	-	-	-	7	6		7.4	2.7	20	
E	CONSTRUCTION INDUSTRY IN CUMBERLAND-PERRY COUNTIES																		
		8	8	-	10	5	-	7	8	-	-	-	-	5		6	4.9	29	
F	TRANSPORTATION-WAREHOUSING & DISTRIBUTION IN CUMBERLAND-PERRY COUNTIES																		
		10	8	9	9	-	-	5	8	-	9	9	2	3		7.2	5.5	40	
G	AGRICULTURE IN CUMBERLAND-PERRY COUNTIES																		
		-	5	9	10	-	6	8	4	7	8	8	4	6		6.9	4.6	32	

COMMUNITY AREA: Cumberland-Perry Counties PREPARED BY: Ross-Willard-Stoner DATE: 2/15/69

FORM 3--NEEDS DEFINITION--VOCATIONAL AND TECHNICAL EDUCATION

The purpose of the second level of planning is the tentative selection of a vocational and technical education program which will produce the greatest socioeconomic value for student and the local area. The program selected is tentative until the resource requirements and costs have been determined at the third level of planning.

Form 3 is used to record data pertaining to the determination of the vocational and technical education needs in each occupational field. The encircled numbers on Form 3 refer to blocks on the flow diagram, Chart 3. Three types of data are entered on the form:

1. State Furnished Data

The State furnishes data on the annual demand of existing employers for workers in each occupational field. This includes demand due to projected employment in 1975 (Col. 3), the annual withdrawal from the labor force (Col. 4), the annual growth of labor force (Col. 5), the annual demand of the labor force (Col. 4 plus Col. 5), the total supply of trained persons from all sources for the year indicated (Col. 8), and the annual need (Col. 9; Col. 7 minus Col. 8). This data is entered in the spaces above the dotted line for each occupational field by the local planner.

For example, in line 2 of Form 3, the projected employment of drafting and design technicians in the Cumberland-Perry Counties area in 1975 was estimated by the State planners to be 493. It was also estimated that the annual withdrawal from the labor force will be 20 per year, and the annual growth of the labor force will be 12. The total annual demand of the labor force is thus the sum of 20 and 12, or 32. Since the supply of trained persons in this area is zero (as of 1967), the annual need is estimated by the State to be 32 minus 0, or 32.

2. Local Socioeconomic Planning Data

The most likely prospects for new industrial development in the local area were determined in the socioeconomic planning cycle using Forms 1 and 2. The estimated employment needs in the potential new industries are determined by using Department of Labor and Industry data on the percent employed in each occupational field by industries (block 7 on the flow diagram). These annual employment needs of potential new employers are entered below the dotted line in column 2 for each occupational field by the local planner.

3. Local Data on Existing and New Industry Needs

In many cases the local area will have more current data on the employment needs of existing industries, and will use this data to change the data furnished by the State. The spaces below the dotted line of Columns 3, 4, 5 and 6 are used to record the local planner's estimate of the total needs of existing employers. Column 7 is used to record the annual demand of labor force due to both existing industries (Col. 6) and potential new industries (Col. 2). More current supply data is entered in column 8, and the local planner's estimate of annual need is entered in Column 9 for each occupational field.

Continuing with the example of drafting and design technicians, the annual employment needs of potential new employers is estimated by the local area planner to be 4, based on the industrial development planning activity. This number is entered below the dotted line in Column 2. It is added to 493 in Column 3 to give 497 as the projected employment in 1975. The total annual demand of the labor force can now be estimated to be 32 plus 4, or 36. Since the total supply of trained persons is confirmed to be zero, the annual need is 36.

4. Trade-off Ratings

In the trade-off process, rating numbers are entered in Columns 10, 11 and 12 using the data below the dotted line in Columns 3, 5 and 9 respectively. The ratings are calculated in the manner previously described for Form 1, and thus are "objective ratings". In Column 13, the skill level rating is obtained for each occupational field from the "Supplement to the Dictionary of Occupational Titles". The "specific vocational preparation" ratings in the third edition (1966) are:

1 - Short demonstration only
2 - Short demonstration -- 30 days
3 - 30 days to 3 months
4 - 3 to 6 months
5 - 6 months to 1 year
6 - 1 to 2 years
7 - 2 to 4 years
8 - 4 to 10 years
9 - over 10 years

The "special needs" rating in Column 15 is a "subjective rating" of the applicability of a proposed program to meet the needs of persons who have academic, socioeconomic, or other handicaps as specified by The Vocational Education Amendments of 1968, P.L. 90-576.

The sum of the ratings, called the "Socioeconomic Value", is entered in Column 15. The selection of occupational fields for further planning is made considering each individual rating as well as the total ratings as a guide. When the selection varies from the total rating, the reason should be given in the plan. In many cases, it may not be a question of selecting or not selecting an occupational field, but one of how much relative emphasis to give to each. In the Cumberland-Perry Counties application, it was useful to put a rank order number in Column 16 for each total rating in Column 15. The check mark in the example denotes the selection of an occupational field for further planning utilizing Form 4.

Returning to the drafting and design technician example, the trade-off ratings are determined for all of the occupational fields according to the arithmetic process previously described, except for the "special needs". This subjective rating is estimated to be zero. Although the total socioeconomic value rating of 11 is lower than some occupational fields, such as farmers and farm workers (line 8) with a rating of 22, the drafting and design course was selected because the rate of growth of demand for the technicians is increasing rapidly while the converse is true of farmers and farm workers.

PENNA VOC. ED. STUDY 1968/9.

FEB. 15, 1969

NEEDS DEFINITION --VOCATIONAL AND TECHNICAL EDUCATION

(SHEET 1 OF 3) **FORM 3**

NOTES:
(1) ENCIRCLED NUMBERS REFER TO PLANNING FLOW DIAGRAM (CHART 3).
(2) USE TOP HALF OF LINE FOR STATE FURNISHED DATA.
(3) USE BOTTOM HALF OF LINE FOR EFFECT OF LOCAL CHANGES ON DATA FURNISHED BY THE STATE.

LINE NUMBER	COLUMN → 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		⑧	EXISTING EMPLOYMENT NEEDS				TOTAL NEEDS			⑯ TRADE-OFFS						⑰
										CRITERIA						
			⑨	⑩	⑪	⑫	⑬	⑭	⑮	USE COL. 3	USE COL. 5	USE COL. 9	USE *	USE REG'S		
	OCCUPATIONAL FIELD	ANNUAL EMPLOYMENT NEEDS OF POTENTIAL NEW EMPLOYERS	PROJECTED EMPLOYMENT IN 1975	ANNUAL WITHDRAWAL FROM LABOR FORCE	ANNUAL GROWTH OF LABOR FORCE	ANNUAL DEMAND OF EXISTING EMPLOYERS (COL. 4 + COL. 5)	TOTAL ANNUAL DEMAND OF LABOR FORCE (COL. 2 + COL. 6)	TOTAL SUPPLY OF TRAINED PERSONS IN 19__ (ALL SOURCES)	ANNUAL NEED (COL. 7 MINUS COL. 8)	DENSITY	GROWTH	SHORTAGE	SKILL LEVEL	SPECIAL NEEDS	TOTAL RATING -- SOCIO-ECONOMIC VALUE	TENTATIVE SELECTION
1	Civil Technology	—	397	12	14	26	—	0	23	1	1	1	7		10	11
2	Drafting & Design Tech.	—	493	20	12	32	—	0	32	1	1	1	8		11	10
		4	497	20	12	32	36	0	36							
3	Electronic Tech.	—	286	13	11	23	—	0	23	1	1	1	7		10	11
		10	296	13	11	23	33	0	33							
4	Electrical Tech.	—	261	12	10	22	—	0	22	1	1	1	7		10	11
5	Medical & Dental Tech.	—	150	5	5	10	—	0	10	1	1	1	7		10	11
6	Technicians N.E.C.	—	504	25	19	44	—	0	44	1	1	1	7		10	11
		5	509	25	19	44	49	0	49							
7	Mgrs. & Offs. & Props.	—	6550	-25	175	150	—	139	11	8	1	5	8		22	3
		5	6555	-25	175	150	155	139	16							
8	Farmers & Farm Wkrs.	—	2900	-41	192	151	—	53	98	4	1	6	6		17	5
9	Accounting & Bkks.	—	1920	44	63	107	—	82	25	3	1	2	7		13	8
		2	1922	44	63	107	109	82	27							
10	Medical & Dental Secy.	—	549	19	11	30	—	0	30	2	2	2	6		12	9
11	Secys. & Stenos.	—	3205	101	132	233	—	194	39	4	5	4	6		19	4
		4	3209	101	132	233	237	194	43							
12	Office Mach. Oprs.	—	1290	37	53	90	—	32	58	2	1	2	5		10	11
		2	1292	37	53	90	92	32	60							
13	Shipping & Stock Clks.	—	1165	31	39	70	—	0	70	2	1	2	6		11	10
		8	1173	31	39	70	78	0	78							
14	Typists & Other Clerical	—	3830	166	282	448	—	262	186	10	10	8	5	7	40	1
		5	8835	166	282	448	553	262	291							
15	Sales Workers	—	7550	90	233	323	—	0	323	9	4	7	4	6	30	2
		3	7553	90	223	323	326	0	326							
	TOTALS →															

* SUPPLEMENT TO DICTIONARY OF OCCUPATIONAL TITLES - SVP.

COMMUNITY AREA: Cumberland-Perry PREPARED BY: Robert T. Stoner DATE: 2/15/69

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NEEDS DEFINITION --VOCATIONAL AND TECHNICAL EDUCATION (SHEET 2 OF 3) FORM 3

NOTES:
(1) ENCIRCLED NUMBERS REFER TO PLANNING FLOW DIAGRAM (CHART 3).
(2) USE TOP HALF OF LINE FOR STATE FURNISHED DATA.
(3) USE BOTTOM HALF OF LINE FOR EFFECT OF LOCAL CHANGES ON DATA FURNISHED BY THE STATE.

LINE NUMBER	COLUMN → 1 OCCUPATIONAL FIELD	2 ⑧ ANNUAL EMPLOYMENT NEEDS OF POTENTIAL NEW EMPLOYERS	3 EXISTING EMPLOYMENT NEEDS ⑨ PROJECTED EMPLOYMENT IN 1975	4 ⑩ ANNUAL WITHDRAWAL FROM LABOR FORCE	5 ⑪ ANNUAL GROWTH OF LABOR FORCE	6 ⑫ ANNUAL DEMAND OF EXISTING EMPLOYERS (COL. 4 + COL. 5)	7 TOTAL NEEDS ⑬ TOTAL ANNUAL DEMAND OF LABOR FORCE (COL. 2 + COL. 6)	8 ⑭ TOTAL SUPPLY OF TRAINED PERSONS IN 19__ (ALL SOURCES)	9 ⑮ ANNUAL NEED (COL. 7 MINUS COL. 8)	10 ⑯ TRADE-OFFS CRITERIA USE COL. 3 DENSITY	11 USE COL. 5 GROWTH	12 USE COL. 9 SHORTAGE	13 USE * SKILL LEVEL	14 USE REG'S SPECIAL NEEDS	15 TOTAL RATING -- SOCIO-ECONOMIC VALUE	16 ⑰ TENTATIVE SELECTION
16	Nursing R.N.	—	1030	37	37	74	—	0	74							
										2	1	2	6		11	10
17	Nursing P.N.	—	350	20	18	38	—	0	38							
										1	1	1	5		8	13
18	Attendants Hosp.& Inst	—	465	20	27	47	—	0	47							
										1	1	1	3	6	12	9
19	Foods Prep. & Service	—	3395	113	357	470	—	0	470							
										4	6	10	4	6	30	2
20	Laundry & Cleaning	—	385	4	19	23	—	0	23							
										1	1	1	2	5	10	11
21	Service Wks. Private	—	1195	0	46	46	—	3	43							
										2	1	2	3	8	16	6
22	Service Workers N.E.C.	—	1215	44	39	83	—	0	83							
		4	1219	44	39	83	87	0	87	2	1	2	2	6	13	8
23	Auto Mechanics	—	1091	28	27	55	—	1	54							
		2	1093	28	27	55	57	1	56	2	1	1	7		11	10
24	Auto Body Mechanics	—	183	6	5	11	—	0	11							
										1	1	1	7		10	11
25	Carpenters	—	320	3	13	16	—	5	11							
										1	1	1	7		10	11
26	Cabinet Makers	—	40	0	0	0	—	6	-6							
										1	1	1	8		11	10
27	Cosmotology & Barbers	—	730	15	34	49	—	3	46							
										1	1	1	6		9	12
28	Craftsmen N.E.C.	—	1881	26	46	72	—	6	66							
		12	1893	26	46	72	84	6	78	3	1	2	7		13	8
29	Electricians Const.	—	815	14	21	35	—	0	35							
										1	1	1	7		10	11
30	Inspectors & Checkers	—	820	6	21	27	—	0	27							
										1	1	1	7		10	11
	TOTALS →															

* SUPPLEMENT TO DICTIONARY OF OCCUPATIONAL TITLES - SVP.

COMMUNITY AREA: Cumberland-Perry PREPARED BY: Robert T. Stoner DATE: 2/15/69

NEEDS DEFINITION --VOCATIONAL AND TECHNICAL EDUCATION (SHEET 3 OF 3) FORM 3

NOTES:
(1) ENCIRCLED NUMBERS REFER TO PLANNING FLOW DIAGRAM (CHART 3).
(2) USE TOP HALF OF LINE FOR STATE FURNISHED DATA.
(3) USE BOTTOM HALF OF LINE FOR EFFECT OF LOCAL CHANGES ON DATA FURNISHED BY THE STATE.

LINE NUMBER	COLUMN → 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		⑧	EXISTING EMPLOYMENT NEEDS				TOTAL NEEDS			⑯ TRADE-OFFS						⑰
										CRITERIA						
										USE COL. 3	USE COL. 5	USE COL. 9	USE *	USE REG'S.		
	OCCUPATIONAL FIELD	ANNUAL EMPLOYMENT NEEDS OF POTENTIAL NEW EMPLOYERS	⑨ PROJECTED EMPLOYMENT IN 1975	⑩ ANNUAL WITHDRAWAL FROM LABOR FORCE	⑪ ANNUAL GROWTH OF LABOR FORCE	⑫ ANNUAL DEMAND OF EXISTING EMPLOYERS (COL. 4 + COL. 5)	⑬ TOTAL ANNUAL DEMAND OF LABOR FORCE (COL. 2 + COL. 6)	⑭ TOTAL SUPPLY OF TRAINED PERSONS IN 19__ (ALL SOURCES)	⑮ ANNUAL NEED (COL. 7 MINUS COL. 8)	DENSITY	GROWTH	SHORTAGE	SKILL LEVEL	SPECIAL NEEDS	TOTAL RATING -- SOCIO-ECONOMIC VALUE	TENTATIVE SELECTION
		—	285	11	25	36	—	0	36							
31	Masons - Brick, etc.									1	1	1	7		10	11
		—	568	13	11	24	—	0	24							
32	Machinists, etc.	23	591	14	12	26	49	12	37	1	1	1	8		11	10
		—	180	0	3	3	—	0	3							
33	Meat Cutters									1	1	1	6		9	12
		—	2232	31	53	84	—	0	84							
34	Mechanics M.&R.N.E.C.	9	2241	31	53	84	93	0	93	3	1	2	7		13	8
		—	95	4	2	6	—	0	6							
35	Office Mach. Repair									3	1	1	6		11	10
		—	455	8	19	27	—	0	27							
36	Painters & Paper Hngrs.									1	1	1	5		8	13
		—	440	12	11	23	—	0	23							
37	Plumber & Pipe Fitters	2	442	12	11	23	25	0	25	1	1	1	7		10	11
		—	330	1	7	8	—	0	8							
38	Printing Craftsmen									1	1	1	8		11	10
		—	830	28	25	53	—	0	53							
39	Police & Guards									1	1	1	4		7	14
		—	185	3	3	6	—	17	-11							
40	Radio & TV Repair									1	1	1	7		10	11
		—	205	2	3	5	—	0	5							
41	Sheetmetal Wks. Inc. Air Cond.-Ref.									1	1	1	8		11	10
		—	1617	-2	80	78	—	0	78							
42	Textile Occupations									2	1	3	4	5	15	7
		—	65	0	1	1	—	0	1							
43	Upholstery									1	1	1	6		9	12
		—	495	9	12	21	—	0	21							
44	Welders & Cutters	32	527	10	13	23	55	0	55	1	1	1	6		9	12
		—					—									
	TOTALS →															

* SUPPLEMENT TO DICTIONARY OF OCCUPATIONAL TITLES - SVP.

COMMUNITY AREA: Cumberland-Perry PREPARED BY: Robert T. Stoner DATE: 2/15/69

FORM 4--CANDIDATE COURSE/RESOURCES COMBINATIONS

In the system planning of large complex situations, it is desirable to make tentative decisions as early in the planning process as possible. This reduces the number of alternatives that must be carried through to the final selection, and thus greatly reduces the work of both data collection and planning. In Form 3, a tentative selection of courses was made based on criteria related to socioeconomic value, without a formal consideration of the resources required and their costs. In Form 4, the final selection is made from the remaining candidate courses, using criteria related to the resources applied and their estimated costs.

It was pointed out, earlier in this chapter, that inventiveness is encouraged and aided in this planning approach. Without the ability and motivation of the planners to invent course/resources combinations in From 4, the planning process can become merely a paper-work exercise. In this respect, the most important qualities, which are required of a systems planner, have been aptly described by Charles J. Hitch in this book, "Decision-Making for Defense":

> "It is my experience that the hardest problems for the systems analyst are not those of analytic techniques--what distinguishes the useful and productive analyst is his ability to formulate (or design) the problem; to choose appropriate objectives; to define the relevant, important environments or situations in which to test the alternatives; to judge the reliability of his cost and other data, and not least, his ingenuity in inventing new systems or alternatives to evaluate".

The inventiveness required in the use of Form 4 is represented in the required content of Columns 18 and 19--"Resource Requirements per Course". It is important to consider all feasible resource alternatives. As an aid to the invention of resource combinations, the following definitions of types of schools and training mediums are provided:

1. Type of School

    a. Specialized Secondary School--A specialized high school used exclusively or principally for the provision of vocational/technical education to persons who are available for full-time study in preparation for entering the labor market.

    b. An Area Vocational-Technical School is an institution offering vocational education programs on a technical, skilled trade, and semi-skilled or occupational levels of instruction to secondary school pupils and out-of-school youth and adults in an area encompassing several school systems. Such schools may be operated on a part-time basis with the academic instruction program supplied by the resident high school or they may be self contained technical high schools.

- In the Full-time Area Technical School, pupils from participating school districts attend a centrally located school organized and established to provide the pupils with the total educational program of shop-laboratory and academic instruction.

- In the Part-time Area Technical School, pupils from participating school districts attend a centrally located shop-laboratory service center for practical shop or laboratory and necessary related instruction, and attend their resident or cooperating high school part-time for academic instruction.

c. Technical/Vocational School/Post Secondary--A public or private technical or vocational school used exclusively or principally for the provision of vocational education to persons who have completed or left high school and who are available for full-time study in preparation for entering the labor market. (Includes Technical Institute)

d. Regular or Comprehensive Secondary School--A high school, designed to meet the educational needs of youth, providing vocational education in field(s) to persons who are available for full-time study in preparation for entering the labor market.

e. Community College--A community college which provides vocational education in occupational field(s), under the supervision of the State Board, leading to immediate employment but not leading to a baccalaureate degree.

f. College or University--A college or university which provides vocational education in occupational field(s), under the supervision of the State Board, leading to immediate employment but not leading to a baccalaureate degree.

g. Combination Specialized Secondary School and Technical or Vocational School--A school that meets the criteria under definition for (a) and (b).

2. Training Medium

a. Full-time Day - Secondary--Instruction is provided full-time in school on a secondary level so that students are employable upon completion of training.

b. Full-time Day - Post Secondary--Instruction is provided full-time in school on a post secondary level so that students are employable upon completion of the training.

c. Part-time Day or Evening Supplementary--Instruction is provided after regular school hours for employed persons so as to increase their skill and knowledge.

d. Cooperative--Supervised instruction is provided approximately half-time in school and half-time on-the-job on secondary or post secondary level--designed to help students acquire job skills and to make the transition from school to work.

e. Itinerant--Instruction is provided by a qualified itinerant vocational instructor who travels on a pre-arranged schedule to teach students in two or more different locations.

f. Mobile--Instruction is provided where the students reside, study, or work through the use of portable, mobile or training trailer units accompanied by a qualified instructor.

g. Vestibule--Instruction is provided in a shop or laboratory adjacent to the production shop or laboratory where trainees may work on "live" jobs but not under actual production conditions.

h. Apprenticeship--Instruction is provided on-the-job in an organized sequence including related instruction over a period of at least two years--organized and supervised by a Joint Apprenticeship Committee.

i. Conference Series--Instruction is offered in a scheduled sequence of organized meetings using conference discussion techniques.

An example of the consideration of a number of alternative course/resources combinations is given on Form 4, sheet 1, line 14: "Typist and General Clerical". Five resource requirements combinations are shown in columns 18 and 19, which are described by the type of school, school name, training medium, and grades of instruction.

Columns 20 through 34 are used to record quantity and cost information pertaining to candidate course/resource combinations. The letters: "A", "B", "C", and "D" in the cost columns refer to factors, which are defined in the Note in Columns 18 and 19. These are only suggested values of the factors which can be determined to suit local level conditions.

In the "Typist and General Clerical" example, the annual enrollment data, entered in Columns 20 and 21, indicate that the first four resource combinations already exist. An additional course is proposed for the Cumberland-Perry area technical school to have an enrollment of 40 students (30 male/10 female) with an estimated entrants into the labor force of 20. A cost estimate for this resource combination is given in Columns 25 through 34.

The trade-off process is conducted using seven criteria in Columns 35 through 41. The total socioeconomic value ratings are entered in Columns 35 from Column 15 of Form 3. The ratings of the resources cost per student (Col. 36) are determined from the data in Column 34 using the same procedure as was described for Form 1, except a high cost gives a low rating and low cost, a high rating. The remaining ratings, even though they may be based on data, are subjective ratings by the planner. When complete cost data is not available (as in the example) subjective ratings are used.

A rating of "0" is entered in the appropriate criterion column if: costs are prohibitive (Col. 36), funds are not available (Col. 37), the occupational field has very poor career possibilities (Col. 38), the there is no employer acceptance of the course (Col. 39), or the course is rejected by the advisory committee (Col. 41). When a "0" rated is given to any of the criteria, then a "0" is also entered in the final selection column (43) to indicate that the candidate course is rejected. An exception to this procedure is that when a "0" rating is given to "the suitability to the needs of the disadvantaged" (Col. 40), the course is not necessarily rejected.

The course may also be rejected if the total rating is low, or for reasons not described by the criteria given on Form 4. A rejection, for any reason, is indicated by a "0" in the final selection column. In such cases, the reason for the rejection must be given in a note which accompanies Form 4.

Again, in reference to the "Typist and General Clerical" example, the subjective ratings are supported by "Note X", following the Form 4 planning sheets. The proposed Cumberland-Perry area technical school course was given a zero rating in the "Advisory Committee Action" criteria column (41), which eliminates this alternative. The reason for the rejection is explained in "Note X".

The decision may be influenced by other criteria which are not listed on Form 4, but which would be discussed in accompanying notes. Such criteria could be:

- Student interest and willingness to enroll
- Capability of student to perform satisfactorily in the course
- Safe working conditions

Another consideration that should be discussed in the accompanying report is the balance of courses in the total program.

As in the case of Form 3, the final selection of courses is based on both the individual ratings and the total rating. Thus, if one criterion is considered relatively important in a particular case, this individual criterion rating may have more influence on the final selection than the total rating. In such cases, the reason should be stated in an accompanying note.

It is important that all significant criteria are taken into account in making a decision. A frequent cause of bad decisions is not in the incorrect use of data given, but that a significant piece of data or selection criteria has not entered into the decision-making process.

PENNA VOC. ED. STUDY 1968/9.

CANDIDATE COURSE/RESOURCES COMBINATIONS (CONSIDER

NOTE: THE FOLLOWING ARE DEFINITIONS OF THE FACTORS USED IN THE COST ANALYSIS IN COLUMNS 24 THRU 34: ㉓
"A" IS 1+% NON-INSTRUCTIONAL FLOOR SPACE.
"B" IS ARCHITECTURAL ESTIMATE OF COST PER SQ. FT.
"C" IS LIFE OF BOND APPLICABLE TO BUILDING (USUALLY 20 YRS.)
"D" IS LIFE OF BOND APPLICABLE TO EQUIPMENT (USUALLY 10 YRS).

LINE NUMBERS (FROM FORM 3)	COLUMN → 17 ⑰←(FLOW DIAGRAM NUMBER) OCCUPATIONAL FIELD/ CANDIDATE COURSE OF OCCUPATIONAL INSTRUCTION NOTE: CANDIDATE COURSES MAY INCLUDE COMBINATIONS OR SUB-DIVISIONS OF OCCUPATIONS LISTED ON FORM 3.	18 ⑱⑲⑳ RESOURCE REQUIREMENTS PER COURSE TYPE OF SCHOOL SCHOOL (EXISTING OR PROPOSED)	19 TRAINING MEDIUM GRADES OF INSTRUCTION	20 FULL TIME ANNUAL ENROLLMENT, EXISTING PROPOSED	21 MALE-FEMALE FULL TIME ANNUAL ENROLLMENT, EXISTING PROPOSED
14	TYPIST & GENERAL CLERICAL	COMPREHENSIVE H. S. 16 Cumberland-Perry	SECONDARY DAY 10-11-12	448	22-426
			PART-TIME EVENING Ungraded	N.A.	
		PRIVATE POST SECONDARY Central Penn Business	PART-TIME DAY OR EVEN. Ungraded	55	2-53
		PRIVATE POST SECONDARY Thompson Institute	PART-TIME DAY OR EVEN. Ungraded	51	4-47
		AREA VOC. TECH. SCH. Cumberland-Perry Area Tech.	SECONDARY DAY 11-12	40	30-10
11	SECRETARY'S & STENO. SECRETARIAL SCIENCE	COMMUNITY COLLEGE Harrisburg Area C. C.	FULL-TIME DAY 13-14	35	2-33
		PRIVATE POST SECONDARY Central Penn Business	PART-TIME DAY OR EVEN. Ungraded	35	2-33
		PRIVATE POST SECONDARY Thompson Institute	PART-TIME DAY OR EVEN. Ungraded	35	2-33
		COMPREHENSIVE H. S. 16 Cumberland-Perry	SECONDARY DAY 11-12	436	6-430
		COMPREHENSIVE H. S. Carlisle High School	PART-TIME DAY OR EVEN. Ungraded	N.A.	
		PRIVATE POST SECONDARY Harrisburg Medical Arts	PART-TIME DAY OR EVEN. Ungraded	N.A.	
		AREA VOC. TECH. SCH. Cumberland-Perry Area Tech.	SECONDARY DAY 11-12	40	35-5
15	MERCHANDISING SALES WORKERS	COMPREHENSIVE H. S. Some Cumberland-Perry	SECONDARY DAY 12	N.A.	
		AREA VOC. TECH. SCH. Cumberland-Perry Area Tech.	SECONDARY DAY 11-12	40	10-30
		(Shared Time)	PART-TIME COOPERATIVE 12	10	3-7

N.A. = Not Available

FEB. 15 1969

ASIBLE RESOURCE ALTERNATIVES) (SHEET 1 OF 3) FORM 4

	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
	㉔ RESOURCES COST ANALYSIS											㉕ TRADE-OFFS								㉖
	OPERATING COSTS		CAPITAL COSTS						TOTAL COSTS			SELECTION CRITERIA								
	⑱		FLOOR SPACE				EQUIPMENT													
(FROM COLUMN 9)	NUMBER OF TEACHING UNITS	ANNUAL OPERATING COST (COL. 24 × AVERAGE TEACHER SALARY +30% OVERHEAD)	⑱ INSTRUCTIONAL FLOOR SPACE (SQ. FT.)	INSTRUCTIONAL & ARCHITECTURAL FLOOR SPACE (COL. 26 × "A")	FLOOR SPACE COST (COL. 27 × "B")	ANNUAL FLOOR SPACE COST (COL. 28 ÷ "C")	⑱ ㉓ INSTRUCTIONAL EQUIPMENT COST	ANNUAL INSTRUCTIONAL EQUIPMENT COST (COL. 30 ÷ "D")	TOTAL ANNUAL RESOURCES COST (COL. 25 + COL. 29 + COL. 31)	PROPOSED FULL TIME ENROLLMENT (FROM COL. 20)	TOTAL ANNUAL RESOURCES COST PER STUDENT (COL. 32 ÷ COL. 33)	Socio-Economic Value (Col. 15)	Resources Cost/Student (Col. 34)	Funding Availability	Future Career Possibilities	Employer Acceptance	Suitability to Disadvantaged	Advisory Committee Action	TOTAL RATING	FINAL SELECTION
1		Suggest that high schools establish and operate terminal courses in typing D. P. card punching, filing, etc.										40	* 8	7	1	8	7	5	76	X
		See accompanying selection decision - NOTE X										40	10	8	1	8	8	6	81	X
												40	1	3	1	9	7	7	68	X
												40	1	3	1	9	7	7	68	X
	1	9750	850	1052	26300	1315	18000	900	11,965	40	299	40	6	5	3	9	10	0	73	0
3												19	2	7	3	10	5	8	54	X
												19	1	3	2	10	6	5	46	X
												19	1	3	2	10	7	5	47	X
												19	6	7	2	8	7	6	55	X
												19	10	5	2	7	8	7	58	X
												19	1	3	3	10	1	9	46	X
	1	9750	850	1052	26300	1315	14000	700	11.765	40	263	19	10	5	2	8	10	2	56	0
6		There is a supply out of the Secondary Schools. Subject usually given in the 12th grade. Not classified as vocational.										30	5	9	3	6	6	4	63	X
	1	10400	2400	3000	75000	3750	8000	800	14,950	40	373	30	5	7	4	8	10	8	72	X
												30	10	9	4	8	10	9	80	X

*(HIGH COST GIVES A LOW RATING)

COMMUNITY AREA: Cumberland-Perry Co's PREPARED BY: Robert T. Stoner DATE: 4/9/69

CANDIDATE COURSE/RESOURCES COMBINATIONS (CONSIDER

NOTE: ㉓
THE FOLLOWING ARE DEFINITIONS OF THE FACTORS USED IN THE COST ANALYSIS IN COLUMNS 24 THRU 34:
"A" IS 1+% NON-INSTRUCTIONAL FLOOR SPACE.
"B" IS ARCHITECTURAL ESTIMATE OF COST PER SQ. FT.
"C" IS LIFE OF BOND APPLICABLE TO BUILDING (USUALLY 20 YRS.)
"D" IS LIFE OF BOND APPLICABLE TO EQUIPMENT (USUALLY 10 YRS.)

⑱ ⑲ ⑳ RESOURCE REQUIREMENTS PER COURSE

LINE NUMBERS (FROM FORM 3)	COLUMN → 17 ⑰ ← (FLOW DIAGRAM NUMBER) OCCUPATIONAL FIELD/ CANDIDATE COURSE OF OCCUPATIONAL INSTRUCTION NOTE: CANDIDATE COURSES MAY INCLUDE COMBINATIONS OR SUB-DIVISIONS OF OCCUPATIONS LISTED ON FORM 3.	18 TYPE OF SCHOOL SCHOOL (EXISTING OR PROPOSED)	19 TRAINING MEDIUM GRADES OF INSTRUCTION	20 FULL TIME ANNUAL ENROLLMENT, EXISTING — PROPOSED	21 MALE - FEMALE FULL TIME ANNUAL ENROLLMENT, EXISTING — PROPOSED	2 ESTIMATED ENTRANTS
19	FOODS PREPARATION & SERV. QUANTITY FOOD'S OCC.	AREA VOC. TECH. SCH. Cumberland-Perry Area Tech.	SECONDARY DAY 11-12	40	25-15	2
		(Shared Time)	PART-TIME COOPERATIVE 12	10	6-4	1
			PART-TIME EVENING Ungraded	N.A.		
23	AUTO ENGINE MECHANICS	AREA VOC. TECH. SCH. Cumberland-Perry Area Tech.	SECONDARY DAY 10-11-12	40	40-0	13
		(Shared Time)	PART-TIME EVENING Ungraded	N.A.		
		COMPREHENSIVE H. S. Carlisle High Sch.	SECONDARY DAY 10-11-12	28	28-0	9
		INDUSTRY IN PLANT (Employer's Name)	ON-THE-JOB Ungraded	N.A.		
32	MACHINE SHOP PRACTICE	AREA VOC. TECH. SCH. Cumberland-Perry Area Tech.	SECONDARY DAY 10-11-12	40	40-0	13
		(Shared Time)	PART-TIME COOPERATIVE 12	20	20-0	20
			PART-TIME EVENING Ungraded	N.A.		
		COMPREHENSIVE H. S. Carlisle High Sch.	SECONDARY DAY 10-11-12	34	34-0	11
		INDUSTRY IN PLANT (Employer's Name)	APPRENTICESHIP 2, 3, or 4 years	8	8-0	3
		INDUSTRY IN PLANT (Employer's Name)	VESTIBULE Ungraded	N.A.		
37	PLUMBER & PIPE FITTERS	AREA VOC. TECH. SCH. Cumberland-Perry Area Tech.	SECONDARY DAY 10-11-12	40	40-0	13
		(Shared Time)	PART-TIME EVENING Ungraded	N.A.		

N.A. = Not Available

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ASIBLE RESOURCE ALTERNATIVES)

(SHEET 2 OF 3) FORM 4

24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
㉔ RESOURCES COST ANALYSIS											㉕ TRADE-OFFS								㉖
OPERATING COSTS		CAPITAL COSTS						TOTAL COSTS			SELECTION CRITERIA								
		FLOOR SPACE				EQUIPMENT													
⑱ NUMBER OF TEACHING UNITS	ANNUAL OPERATING COST (COL. 24 × AVERAGE TEACHER SALARY +30% OVERHEAD)	⑱ INSTRUCTIONAL FLOOR SPACE (SQ. FT.)	INSTRUCTIONAL & ARCHITECTURAL FLOOR SPACE (COL. 26 × "A").	FLOOR SPACE COST (COL. 27 × "B")	ANNUAL FLOOR SPACE COST (COL. 28 ÷ "C")	⑱ ㉓ INSTRUCTIONAL EQUIPMENT COST	ANNUAL INSTRUCTIONAL EQUIPMENT COST (COL. 30 ÷ "D")	TOTAL ANNUAL RESOURCES COST (COL. 25 + COL. 29 + COL. 31)	PROPOSED FULL TIME ENROLLMENT (FROM COL. 20)	TOTAL ANNUAL RESOURCES COST PER STUDENT (COL. 32 ÷ COL. 33)	Socio-Economic Value (Col. 15)	Resources Cost/Student (Col. 34) *	Funding Availability	Future Career Possibilities	Employer Acceptance	Suitability to Disadvantaged	Advisory Committee Action	TOTAL RATING	FINAL SELECTION
1	10400	2000	2500	62500	3125	40000	4000	17525	40	438	30	3	7	5	7	10	8	70	X
	See accompanying selection decision - NOTE Y										30	10	8	5	9	10	9	81	X
											30	8	7	5	7	10	6	73	0
1	10400	2400	3000	75000	3750	40000	4000	18150	40	453	14	2	7	5	7	8	10	53	X
											14	9	8	5	7	8	8	59	0
											14	6	7	5	7	6	7	52	X
											14	10	3	5	8	10	9	59	X
1	10400	2800	3500	87500	4375	100000	10000	24775	40	619	11	1	7	6	10	5	10	50	X
											11	9	8	6	10	7	9	60	X
											11	8	8	6	8	8	8	57	0
											11	2	7	6	8	4	7	45	X
											11	10	3	6	10	10	10	60	X
											11	10	3	6	9	10	10	59	X
1	10400	2400	3000	75000	3750	20000	2000	16150	40	403	10	4	7	6	8	7	9	51	X
											10	10	7	6	6	8	7	54	0

*(HIGH COST GIVES A LOW RATING)

COMMUNITY AREA: Cumberland-Perry Co's PREPARED BY: Robert T. Stoner DATE: 4/9/69

CANDIDATE COURSE/RESOURCES COMBINATIONS (CONSIDER

LINE NUMBERS (FROM FORM 3)	COLUMN → 17 ⑰←(FLOW DIAGRAM NUMBER) OCCUPATIONAL FIELD/ CANDIDATE COURSE OF OCCUPATIONAL INSTRUCTION NOTE: CANDIDATE COURSES MAY INCLUDE COMBINATIONS OR SUB-DIVISIONS OF OCCUPATIONS LISTED ON FORM 3.	18	19	20 FULL TIME ANNUAL ENROLLMENT, EXISTING — PROPOSED	21 MALE - FEMALE FULL TIME ANNUAL ENROLLMENT, EXISTING — PROPOSED
		NOTE: THE FOLLOWING ARE DEFINITIONS OF THE FACTORS USED IN THE COST ANALYSIS IN COLUMNS 24 THRU 34: "A" IS 1+% NON-INSTRUCTIONAL FLOOR SPACE. "B" IS ARCHITECTURAL ESTIMATE OF COST PER SQ. FT. "C" IS LIFE OF BOND APPLICABLE TO BUILDING (USUALLY 20 YRS.) "D" IS LIFE OF BOND APPLICABLE TO EQUIPMENT (USUALLY 10 YRS). ㉓			
		⑱⑲⑳ RESOURCE REQUIREMENTS PER COURSE			
		TYPE OF SCHOOL SCHOOL (EXISTING OR PROPOSED)	TRAINING MEDIUM GRADES OF INSTRUCTION		
		INDUSTRY IN PLANT (Employer's Name)	APPRENTICESHIP 4 years Ungraded	N.A.	
1	CIVIL TECHNOLOGY	COMMUNITY COLLEGE Harrisburg Area C. C.	FULL-TIME DAY 13-14	20	19-1
		AREA VOC. TECH. SCH. Cumberland-Perry Area Tech.	SECONDARY DAY 11-12	40	40-0
		POST SECONDARY Pa. State-York Center	FULL-TIME DAY 13-14	23	23-0
2	DRAFTING & DESIGN TECH.	COMMUNITY COLLEGE Harrisburg Area C. C.	FULL-TIME DAY 13-14	36	32-4
		AREA VOC. TECH. SCH. Cumberland-Perry Area Tech.	SECONDARY DAY 10-11-12	40	36-4
		(Shared Time)	PART-TIME EVENING Ungraded	N.A.	
8	FARMERS & FARM WORKERS AGRICULTURE EDUCATION	COMPREHENSIVE H. S. Some Cumberland-Perry	SECONDARY DAY 10-11-12	259	259-0
		UNIVERSITY Pa. State-Extension	CONFERENCE SERIES Ungraded	N.A.	
9	ORNAMENTAL HORTICULTURE	AREA VOC. TECH. SCH. Cumberland-Perry Area Tech.	SECONDARY DAY 10-11-12	40	30-10
		(Shared Time)	PART-TIME COOPERATIVE 12	5	3-2
		AREA VOC. TECH. SCH. Dauphin County Area Tech.	SECONDARY DAY 10-11-12	40	30-10
		(Shared Time)	PART-TIME COOPERATIVE 12	5	4-1
		COMPREHENSIVE H. S. Cumberland Valley H.S.	SECONDARY DAY 10-11-12	N.A.	N.A.
			PART-TIME EVENING Ungraded	N.A.	N.A.

N.A. = Not Available

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SIBLE RESOURCE ALTERNATIVES)

(SHEET 3 OF 3) **FORM 4**

24	25	26	27.	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
㉔ RESOURCES COST ANALYSIS											㉕ TRADE-OFFS								㉖
OPERATING COSTS		CAPITAL COSTS						TOTAL COSTS			SELECTION CRITERIA								
		FLOOR SPACE				EQUIPMENT													
⑱ NUMBER OF TEACHING UNITS	ANNUAL OPERATING COST (COL. 24 × AVERAGE TEACHER SALARY +30% OVERHEAD)	⑱ INSTRUCTIONAL FLOOR SPACE (SQ. FT.)	INSTRUCTIONAL & ARCHITECTURAL FLOOR SPACE (COL. 26 × "A").	FLOOR SPACE COST (COL. 27 × "B")	ANNUAL FLOOR SPACE COST (COL. 28 ÷ " C")	INSTRUCTIONAL EQUIPMENT COST ⑱ ㉓	ANNUAL INSTRUCTIONAL EQUIPMENT COST (COL. 30 ÷ "D")	TOTAL ANNUAL RESOURCES COST (COL. 25 + COL. 29 + COL. 31)	PROPOSED FULL TIME ENROLLMENT (FROM COL. 20)	TOTAL ANNUAL RESOURCES COST PER STUDENT (COL. 32 ÷ COL. 33)	Socio-Economic Value (Col. 15)	Resources Cost/ Student (Col. 34)	Funding Availability	Future Career Possibilities	Employer Acceptance	Suitability to Disadvantaged	Advisory Committee Action	TOTAL RATING	FINAL SELECTION
											10	* 10	3	6	9	10	10	58	X
											10	2	8	8	10	2	10	50	X
											10	7	7	7	8	2	8	49	0
											10	2	8	8	10	2	10	50	X
											11	4	7	8	10	2	10	52	X
1	10400	2520	3150	78750	39370	18000	1800	16137	40	403	11	4	7	7	8	3	8	48	X
											11	9	7	7	7	5	9	55	0
			Supply from A. E. Depts. of Comprehensive H. S. and College Extension Courses								22	6	8	6	7	8	9	66	X
											22	3	6	6	8	1	10	56	X
1	10400	4000	5200	130000	6500	30000	1500	18400	40	460	22	2	7	7	8	9	7	62	X
											22	9	10	8	9	10	9	77	X
1	10400	4000	5200	130000	6500	30000	1500	18400	40	460	22	2	7	7	8	9	7	62	X
											22	9	10	8	9	10	9	77	X
1/8		Not Applicable See accompanying selection decision - NOTE 2																	0

*(HIGH COST GIVES A LOW RATING)

OMMUNITY AREA: Cumberland-Perry Co's PREPARED BY: Robert T. Stoner DATE: 4/9/69

DISCUSSION OF FORM 4 RATINGS AND SELECTION DECISIONS

NOTE X--TYPIST AND GENERAL CLERICAL COURSE

This course has the highest rating, 81 points, for operation by comprehensive high schools in ungraded evening classes by reason of low cost. Operations in the Area Vocational-Technical School for all-day secondary pupils had a high rating, 73 points, primarily because it could be adapted to the needs of disadvantaged pupils who could with minimal competencies find employment in routine clerical positions. All existing schools and mediums had comparatively similar ratings and all should continue in operation.

The elimination of the proposed course in the AVTS programs was based on the conclusion that the labor force need was not critical, and the presently operating courses could increase production at low cost. However, in any future labor force or socioeconomic emergency, the AVTS Board will consider operation of an intensive course for out-of-school youth and adults by facility lease arrangements with one of the established schools.

NOTE Y--QUANTITY FOOD'S OCCUPATIONS

This course has high rating, 70 points, primarily by reason of socioeconomic value to the community and in its adaptability to the occupational needs of disadvantaged persons. The part-time cooperative program has the highest rating, 81 points, by reason of emphasis on pupil wage earning, low cost, and learning under actual working conditions. It is also significant that no other institution has been established to meet this manpower demand for persons prepared to accept career responsibilities in a rapidly growing business in the county area.

The selection of this course for operation in all three mediums of instruction at the AVTS has ample justification with no foreseeable alternatives.

NOTE Z--ORNAMENTAL HORTICULTURE

This course, a composite of classroom instruction, greenhouse, laboratory and field practicum in floriculture, arboriculture, turf management, landscaping, nursery operation and management, employs approximately 350 persons in the Harrisburg Metropolitan Area. An estimated 40 new job entrants are in demand each year in this growing industry. Seasonal helpers are also employed. There is a diversity of specialized entry jobs in the horticulture industry and opportunity for advancement as an independent worker or supervisor.

Part-time cooperative instruction has a higher rating (77) points than all day in-school instruction (62) points by reason of lower costs, part-time paid employment, and employer acceptance. However, because of seasonal employment before full-time job acceptance it is considered necessary to provide full-time in-school instruction to attain the ultimate in job proficiency.

The Cumberland Valley High School, general agriculture course, in which a number of students specialize in horticulture might discontinue this specialty in deference to a more comprehensive program in the Cumberland-Perry AVTS. The Cumberland Valley High School might then choose to select other agriculture specialties which are attractive to pupils and of significant economic value to the community. The separation of the instructional areas suggests a two teacher organization to provide adequate instruction and supervision, however, at this time only one instructor is recommended. The high cost is related to the large floor area including a commercial size greenhouse, and the desirability of teacher employment on a 12 month basis. This additional cost is not included under Column 25.

FORM 5--PROGRAM SUMMARY

Form 5 has been designed to record a synthesis of the course/resources combinations, i.e., the programs finally selected on Form 4. This includes both the existing programs that are to be continued, and newly proposed programs. The column spaces along the top of Form 5 are used to list: (1) school types (in caps), (2) school names, and (3) training mediums (inset). The full-time annual enrollment data from Form 4, column 20 are entered in the appropriate spaces. Existing program data is put in the top half of the spaces, and proposed program data is put in the bottom half.

The columns 45 through 48 are used to summarize the enrollment and the manpower supply and demand data for each course/occupational field. Existing and proposed enrollment is summarized in columns 45 and 46. Estimated annual entrants into the labor force (the supply) is entered in column 47 and the unmet need (the demand from Column 7 minus the supply, column 47) is entered in column 48. The unmet need is of concern to the school administrator who may endeavor to increase the quantity or effective use of facilities and other resources. An excess of expected graduates is indicated by a negative unmet need quantity.

For example, refer to line 32, "Machine Shop Practice" on Form 5, sheets 1 and 2. The existing full-time annual enrollment of 34 students, which is recorded in column 20 of Form 4, sheet 2, is entered at the top of the space in column S of Form 5, sheet 1. The existing enrollments of 34 (sheet 1, column S) and 8 (sheet 2, column K), a total of 42, is entered in column 45. The total estimated annual entrants into the labor force from column 20 of Form 4, sheet 2, is 47, which is entered in column 47 of Form 5. The unmet need (column 7-column 47) is 49 minus 47, or 2, recorded in column 48.

Form 5 may be used to collate data for "preparatory" type of programs, or of those that are "supplementary" to regular employment. The two types of programs should be summarized on separate sheets. The example provided in this report is concerned only with preparatory programs.

After completing Form 5, it may be necessary to change some of the selections on Form 3 or 4 in order to avoid trained manpower shortages or surpluses. This feedback and iterative activity is indicated by the dotted lines on the flow diagram (Chart 3).

PENNA. VOC. ED. STUDY - 1968/9.

PROGRAM SUMMARY -- VOCATIONAL A

LINE NUMBER (FROM FORM 4)	COLUMN → 44 COLUMN TITLES: → (FOR EXISTING AND PROPOSED PROGRAMS) • SCHOOL TYPES • SCHOOL NAMES • TRAINING MEDIUMS (INSET) IN COLUMNS FOLLOWING. DATA IN EACH LINE: • ANNUAL ENROLLMENT--EXISTING/PROPOSED • PREPARATORY (P) OR SUPPLEMENTARY (S) COURSE PROPOSED AND/OR OCCUPATIONAL FIELD	A COLL. OR UNIV.	B Pa. State Univ.	C Conference Series	D COMMUNITY COLL.	E Harrisburg Area C.C.	F Full Time Day	G. P.T. Day or Even	H	I POST SECONDARY	J Pa. State-York Center	K Full Time Day	L. P.T. Day or Even.	M	N COMPREHENSIVE H.S.
14	TYPIST & GEN. CLERICAL														
11	SECRETARY'S & STENO. SECRETARIAL SCIENCE						35								
15	MERCHANDISING SALES WORKERS														
19	FOODS PREPARATION & SERV. QUANTITY FOODS OCCUPT.														
23	AUTO ENGINE MECHANICS														
32	MACHINE SHOP PRACTICE														
37	PLUMBERS & PIPE FITTERS														
1	CIVIL TECHNOLOGY						20					23			
2	DRAFTING & DESIGN TECH.						36								
8	FARMERS & FARM WORKERS AGRICULTURE EDUCATION			N.A.											
9	ORNAMENTAL HORTICULTURE														
	TOTAL →														

N.A. = Not available

FEB. 15, 1969

CHNICAL EDUCATION BLOCK ㉗ "SYNTHESIS" --REFER TO CHART 3 (SHEET 1 OF 2) FORM 5

Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	45	46	47	48
Part-time Even.	Carlisle H.S.	Secondary Day	Part-Time Even.		AREA VOC. TECH. SCH.	Cumberland-Perry Area Tech.	(Shared Time)	Secondary Day	Part-Time Coop.	Part-Time Even.	Dauphin County Area Tech.	(Shared Time)	Secondary Day	Part-Time Coop.		ANNUAL PREPARATORY ENROLLMENT -- EXISTING	ANNUAL PREPARATORY ENROLLMENT -- PROPOSED	ESTIMATED ANNUAL ENTRANTS INTO LABOR FORCE (COL. 22)	UNMET NEED COL. 7 - COL. 47
																See	Sheet	2	
			N.A.													See	Sheet	2	
								40	10							-	50	30	- 296
								40	10	N.A.						--	50	30	440
		28						40		N.A.						28	40	22	35
		34						40	20	N.A.						See	Sheet	2	
								40								See	Sheet	2	
																43	--	21	5
								40								36	40	31	5
																259	--	80	71
N.A.								40	5				40	5		--	90	39	1

COMMUNITY AREA: Cumberland-Perry Co's. SUBMITTED BY: Robert T. Stoner DATE: 4/9/69

PROGRAM SUMMARY -- VOCATIONAL

LINE NUMBER (FROM FORM 4)	COLUMN → 44	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	COLUMN TITLES: → (FOR EXISTING AND PROPOSED PROGRAMS) • SCHOOL TYPES • SCHOOL NAMES • TRAINING MEDIUMS (INSET) IN COLUMNS FOLLOWING. DATA IN EACH LINE: • ANNUAL ENROLLMENT--EXISTING/PROPOSED • PREPARATORY (P) OR SUPPLEMENTARY (S) **COURSE PROPOSED AND/OR OCCUPATIONAL FIELD**	PRIVATE POST SEC.	Central Penn Bus.	P.T. Day or Even.	Thompson Inst.	P.T. Day or Even.	Hbg. Med. Arts	P.T. Day or Even.		INDUSTRY IN-PLANT	(Employer's Name)	Apprenticeship	Vestibule	On-The-Job	
14	TYPIST & GEN. CLERICAL			55		51									
11	SECRETARY'S & STENO. SECRETARIAL SCIENCE			35		35		N.A.							
15	MERCHANDISING SALES WORKERS														
19	FOODS PREPARATION & SERV. QUANTITY FOODS OCCUPT.														
23	AUTO ENGINE MECHANICS													N.A.	
32	MACHINE SHOP PRACTICE											8	N.A.		
37	PLUMBERS & PIPE FITTERS											N.A.			
1	CIVIL TECHNOLOGY														
2	DRAFTING & DESIGN TECH.														
8	FARMERS & FARM WORKERS AGRICULTURE EDUCATION														
9	ORNAMENTAL HORTICULTURE														
	TOTAL →														

N.A. = Not available

FEB. 15, 1969

ECHNICAL EDUCATION BLOCK ㉗ "SYNTHESIS" --REFER TO CHART 3 (SHEET 2 OF 2) FORM 5

Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	45	46	47	48
																ANNUAL PREPARATORY ENROLLMENT -- EXISTING	ANNUAL PREPARATORY ENROLLMENT -- PROPOSED	ESTIMATED ANNUAL ENTRANTS INTO LABOR FORCE (COL. 22)	UNMET NEED COL. 7 - COL. 47
																554	--	282	166
																541	--	244	-11
																42	60	47	2
																--	40	13	12

COMMUNITY AREA: Cumberland-Perry Co's. SUBMITTED BY: Robert T. Stoner DATE: 4/9/69

SYSTEMS PLANNING AND EVALUATION

Although it is not within the scope of this study to design an evaluation planning procedure, some discussion of this subject is appropriate since systems planning must be conducted with considerable thought as to how the programs in operation are to be evaluated. When the planning is oriented toward the end product (operation and evaluation), the need for precise objectives, measurable goals, and appropriate selection criteria is emphasized. The relationship between systems planning, evaluation planning, and the subsequent operations evaluation, is depicted in Chart 4.

The first column on the chart shows the sequence of major steps involved at the three levels of systems planning. The second column describes some of the *typical* evaluation planning work. As the systems planning is accomplished at each successive level, information is generated which is used in the evaluation planning. This flow of planning information is indicated by the slanting arrows running from left to right. For example, in the trade-off and synthesis steps of the Socioeconomic Cycle (Level 1), potential new industries for economic development in a local area are selected. Also special arrangements may be made between the local area and new industries to supply trained manpower. This economic planning information is used in the design of surveys to measure the effect of the resulting vocational education programs on the new industries and the community.

The surveys, designed at Level 1, are further developed in the Vocational Education Planning Cycle (Level 2) in which the occupational training needs of existing industries are determined. In other words, the evaluation planning work is a *cumulative* process, so that as additional information becomes available in the course of the system planning, it is used to expand the work already done in the evaluation planning. This growth of the evaluation design, consisting of surveys, tests and studies, is represented on the chart by the heavy downward arrows.

Most of the tasks involved in the evaluation planning cannot be completed until the work at the Resources Planning Cycle (Level 3) has been completed. For example, the design of industry surveys regarding the performance of students on the job cannot be completed until the resources to be applied in the training of the students have been defined. It is necessary to know not only how well the new employees are doing, but how well they are doing as a result of the training resources which were applied--such as teachers, facilities, equipment, instructional materials, time and money.

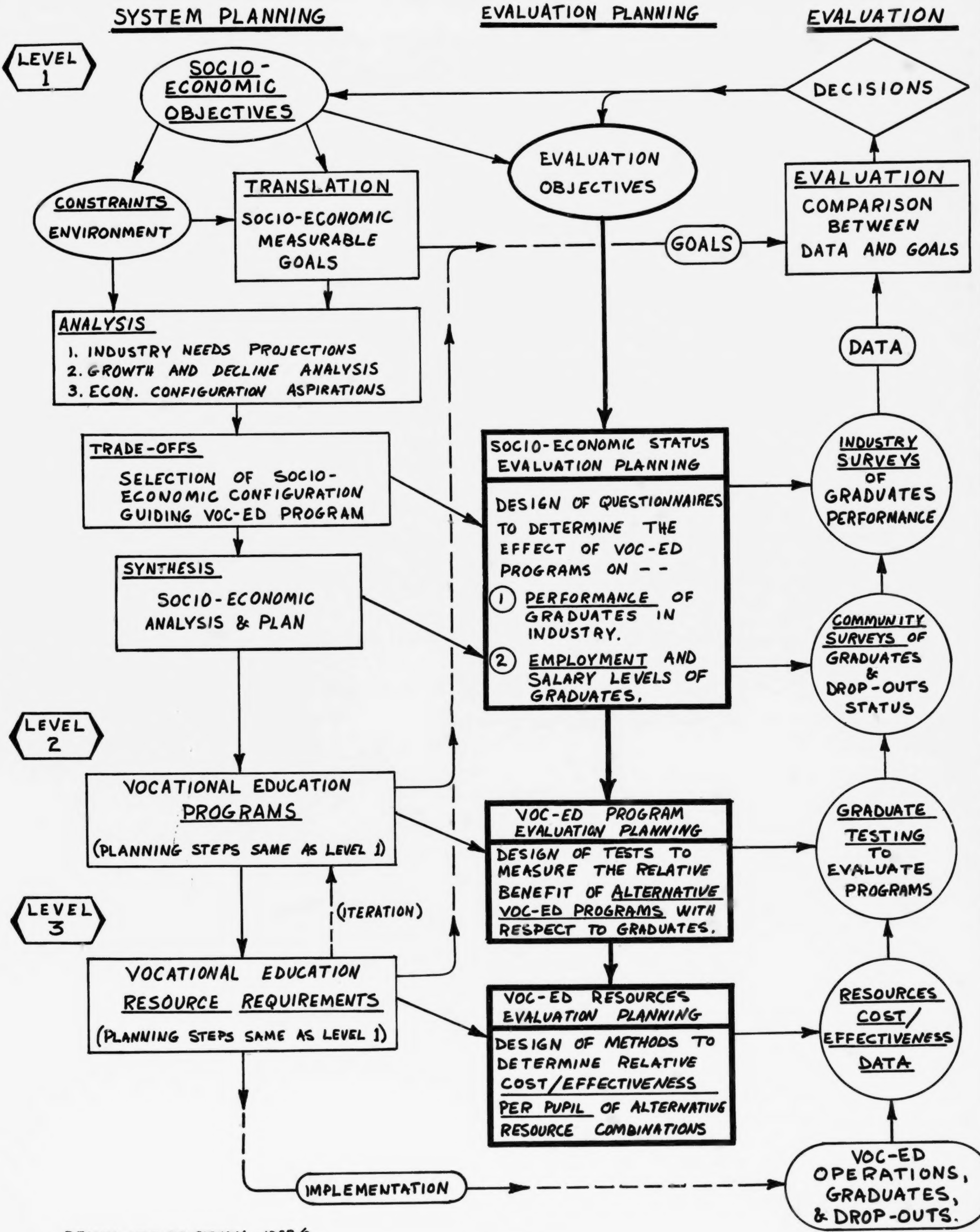
The third column on the chart shows the upward flow of operating data, which was prescribed during the evaluation planning process. The comparison of this data with the present goals constitutes the principal task in the evaluation of the system. Another task is to determine if the most appropriate selection criteria were used in the system planning, and if the data (such as shown in Forms 1 and 3) used to determine the criteria ratings were an accurate representation of the problem environment relative to decision-making.

The evaluation process usually results in the making of new decisions, as shown on the top of the chart, which affect both the future system planning and the evaluation planning. Thus the complete program management process is a continuous cycle of activities, consisting of system planning, evaluation planning, program operation, data collection, and evaluation. This cycle is repeated when new policies and environmental conditions, i.e., the "constraints", cause the problem to be restated and its solution replanned.

The emphasis in the "systems approach" concept of program management is on logical decision-making. Since all logical decisions are made by the conscious use of criteria, or "standards of judgment", a great deal of attention must be given to their formulation and utilization throughout the program management cycle. The role of criteria, as the hub of all activities, is illustrated in Chart 5. In the program-defining activities of the cycle, the criteria are formulated; in the problem-solving activities, they are used to make decisions and, later (along with the goals), they are used to evaluate the results of the decisions.

CHART 4

VOCATIONAL EDUCATION SYSTEM PLANNING AND EVALUATION

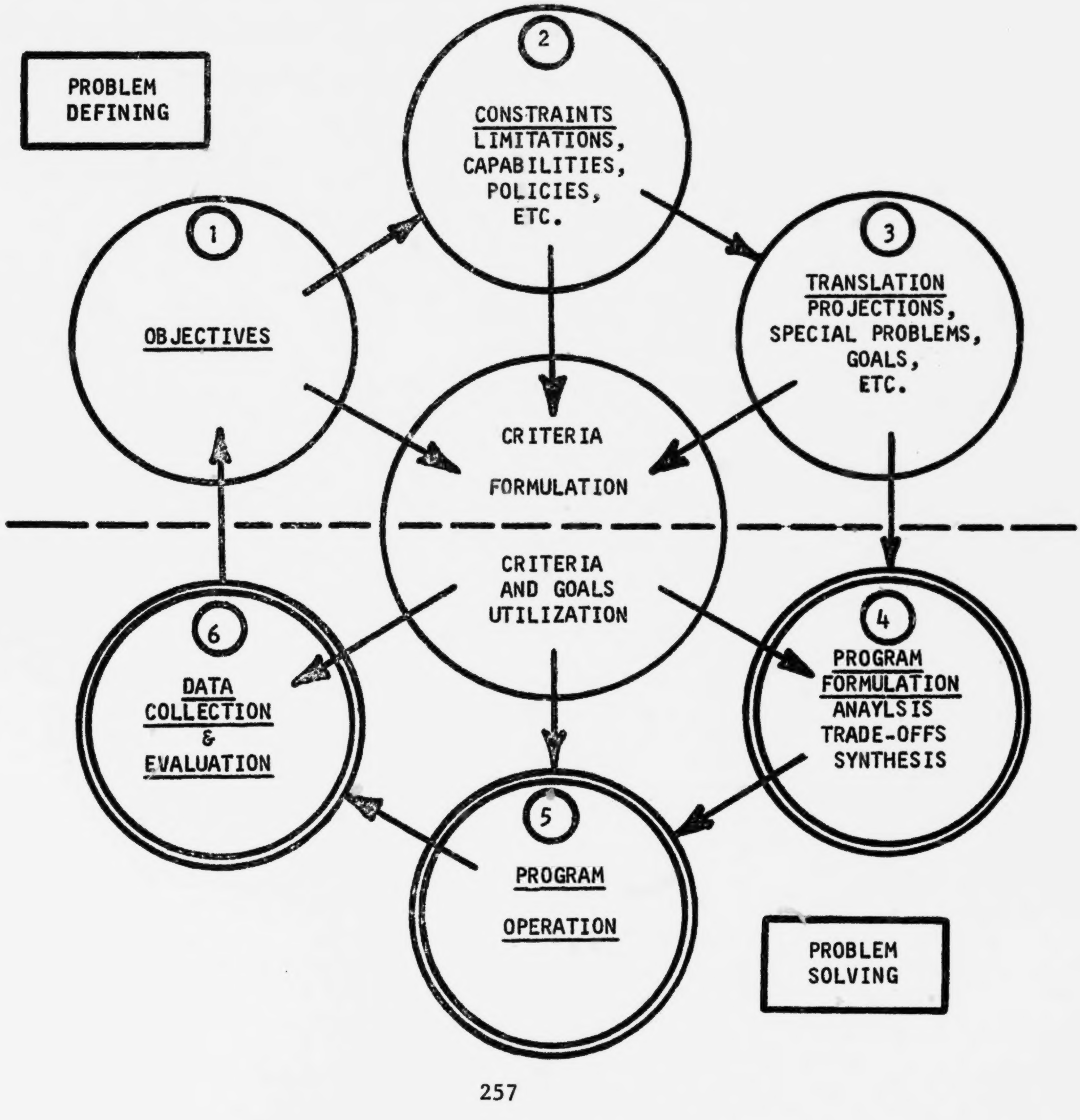

SYSTEM PLANNING
EVALUATION PLANNING
EVALUATION
LEVEL 1
SOCIO-ECONOMIC OBJECTIVES
DECISIONS
EVALUATION OBJECTIVES
CONSTRAINTS ENVIRONMENT
TRANSLATION SOCIO-ECONOMIC MEASURABLE GOALS
GOALS
EVALUATION COMPARISON BETWEEN DATA AND GOALS
ANALYSIS
1. INDUSTRY NEEDS PROJECTIONS
2. GROWTH AND DECLINE ANALYSIS
3. ECON. CONFIGURATION ASPIRATIONS
DATA
TRADE-OFFS SELECTION OF SOCIO-ECONOMIC CONFIGURATION GUIDING VOC-ED PROGRAM
SOCIO-ECONOMIC STATUS EVALUATION PLANNING
DESIGN OF QUESTIONNAIRES TO DETERMINE THE EFFECT OF VOC-ED PROGRAMS ON --
① PERFORMANCE OF GRADUATES IN INDUSTRY.
② EMPLOYMENT AND SALARY LEVELS OF GRADUATES.
INDUSTRY SURVEYS OF GRADUATES PERFORMANCE
SYNTHESIS SOCIO-ECONOMIC ANALYSIS & PLAN
COMMUNITY SURVEYS OF GRADUATES & DROP-OUTS STATUS
LEVEL 2
VOCATIONAL EDUCATION PROGRAMS (PLANNING STEPS SAME AS LEVEL 1)
VOC-ED PROGRAM EVALUATION PLANNING
DESIGN OF TESTS TO MEASURE THE RELATIVE BENEFIT OF ALTERNATIVE VOC-ED PROGRAMS WITH RESPECT TO GRADUATES.
GRADUATE TESTING TO EVALUATE PROGRAMS
LEVEL 3
(ITERATION)
VOCATIONAL EDUCATION RESOURCE REQUIREMENTS (PLANNING STEPS SAME AS LEVEL 1)
VOC-ED RESOURCES EVALUATION PLANNING
DESIGN OF METHODS TO DETERMINE RELATIVE COST/EFFECTIVENESS PER PUPIL OF ALTERNATIVE RESOURCE COMBINATIONS
RESOURCES COST/EFFECTIVENESS DATA
IMPLEMENTATION
VOC-ED OPERATIONS, GRADUATES, & DROP-OUTS.

PENNA. VOC-ED STUDY - 1968/9.

R.G.W.

CHART 5

THE ROLE OF CRITERIA IN THE PROGRAM MANAGEMENT CYCLE


PROBLEM DEFINING
2
CONSTRAINTS
LIMITATIONS, CAPABILITIES, POLICIES, ETC.
1
OBJECTIVES
3
TRANSLATION
PROJECTIONS, SPECIAL PROBLEMS, GOALS, ETC.
CRITERIA FORMULATION
CRITERIA AND GOALS UTILIZATION
6
DATA COLLECTION & EVALUATION
4
PROGRAM FORMULATION
ANAYLSIS TRADE-OFFS SYNTHESIS
5
PROGRAM OPERATION
PROBLEM SOLVING

MANAGEMENT CONSIDERATIONS

Four stages in the implementation and use of the systems planning process have been described, which are:

- Structuring of the Total Problem--in this case, in the form of a matrix (Chart 2)
- Flow Diagramming of the Complete Process (Chart 3)
- Design and Use of Planning Forms (Forms 1 through 5)
- Managing the process on a continuous basis (Charts 4 and 5)

Some considerations on the continuous job of managing systems planning activities are as follows:

1. The planning effort must be lead, stimulated and continuously followed. It must become a way-of-life of the organization, and not a side effort. The degree of management participation required is expressed in the following paragraph from the book, "Planning and Problem Solving in Marketing" by Wroe Alderson and Paul E. Green:

   > "Leadership is the central force which enables a system to act as a unit. Effective leadership requires superior talents, but there is one factor which is even more vital than talent--the ability of the leader to identify completely with the system of which he is a part, and to relate his personal success or failure directly to the success or failure of the system."

2. Planning can proceed without perfect data. As it was previously pointed out, the most important consideration in constructing a plan using the "systems approach" is the point-of-view--i.e., proceeding deductively from the objectives and structuring the total problem. In this way, the total data needs are systematically identified and defined so that programs can be established by Commerce, Labor and other Departments to get the data. In the meantime, imperfect data and estimates can be used to guide the decision-making process--as John Stuart Mill noted in the last century, "Knowledge insufficient for prediction, may yet be valuable for guidance."

3. The planning procedure itself should be continually developed and refined, but with the objective of designing the least complicated procedure required to make decisions involving the total problem. To accomplish this purpose, the collection and analysis of data should be kept to a minimum. An essential point in the choice of a trade-off and decision-making technique is that it be simple and easily used, so that the problem itself is not obscured. Complex mathematical computerized techniques often tend to become academic exercises with no

justification for complexity. This point-of-view is also expressed by C. J. Hitch in the book, "Analysis for Military Decisions", (Edited by E. S. Quade, The Rand Corp., Rand McNally publishers):

> "An important result was looking at the problem in a broad systems context. An elaborate computation was not really necessary. It was too simple, once you thought about it in the right manner. But a systems analysis forced both the systems analyst and his military audience to think the problem through in a systems context".

4. The fact that there is always resistance to change should not be a deterrent. The "systems approach" requires sustained thinking by the planners, and the coordinated support of the entire organization. In connection with the implementation of this approach, C. J. Hitch observed that it is much easier to change policy than to change procedures. Policy-making involves a relatively small group of people at the top, whereas procedures involve the entire establishment, and the way in which they have been doing things day after day and year after year.

The risks of innovation were well understood by Machiavelli, who described them in "The Prince" as follows"

> "There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things, because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new".

This chapter has described the philosophy of the "systems approach", and the procedures involved in its application to State-local planning of Vocational Education Programs. An outline description of the implementation steps and the functions, responsibilities and duties involved in the complete process is discussed in the next chapter on organization and administration.

SECTION III--PROGRAM PLANNING AND IMPLEMENTATION

CHAPTER VII--ORGANIZATION AND ADMINISTRATION

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SECTION III--PROGRAM PLANNING AND IMPLEMENTATION

CHAPTER VII

ORGANIZATION AND ADMINISTRATION

INTRODUCTION

There has been great urgency throughout the country especially since 1961 for an adequate program of organized occupational and continuing education which enable youth and older persons to enter into and progress in gainful jobs in the labor force. Pennsylvania has been no exception to this pressing demand. Although, a great number of public and private agencies are now involved in responding to this urgency, the Federal, State and local system of vocational education in this country, now more than 50 years old, is at least potentially, the best medium for developing, conducting and coordinating extensive State-wide and nation-wide occupational training programs of all kinds. (See "The Federal-State-Local System of Vocational Education" in Appendix B).

Obviously, there is urgent need for greater coordination of the several manpower training activities currently operating under four different State agencies. Chapter V of this report identified nine principal training agencies in Pennsylvania which produced about 76,000 graduates on non-professional occupational education programs. The Department of Public Instruction programs supplied 63% of these graduates in 1967. The continued growth of the area vocational technical schools and the occupational education programs of the growing community colleges promise to maintain or increase that percentage of the total output of graduates in the years ahead.

In the light of this growing extensive system of occupational education throughout the Commonwealth, it appears to be in the best interest of efficiency for the State administration to designate the State Board of Education as the coordinating agency for the various training programs responsible for the supply of trained manpower. The program planning system described in the preceding Chapter is designed to provide for the coordination of training programs by giving consideration to all feasible alternatives to meet identified training needs.

THE SCOPE AND COMPLEXITY OF OCCUPATIONAL EDUCATION

Occupational education in the United States is an extremely complex education process. The program is extensive, varied and complex. For example, it is expected to reach the young, even as early as age 14, as well as the aging. It is expected to be preparatory in nature as well as supplementary to the employed workers' skills and knowledge. The program offers occupational education and training in more than 600 recognized occupations throughout the nation. It is expected that education and training for all kinds of nonprofessional jobs shall be considered, whenever and wherever there is need or demand--jobs of widely varying skill requirements--minimum skilled to highly skilled technician work.

The program is expected to provide occupational and continuing education for persons of all levels of ability, from slower or reluctant learners to the most able and highly motivated. It is also expected to meet the needs of in-school youth, early school leavers, young adults out-of-school, posthigh school students, the disadvantaged and handicapped, the unemployed, and displaced workers. The programs operate at the secondary level, the postsecondary level, in technical institutes, public and private, area vocational technical schools and community colleges and in fact, in colleges and universities. The State Board for Vocational Education recognizing the need for the development of occupational and continuing education in the Commonwealth to provide appropriate educational opportunities and services to all segments of the population, adopted, on March 10, 1966, the following goals for vocational education:

GOALS FOR VOCATIONAL-TECHNICAL EDUCATION

As part of the planning for the development of vocational-technical education in the Commonwealth, and to provide appropriate educational opportunities and services to all Pennsylvanians, the State Board for Vocational Education adopted the following Goals:

1. Occupational education programs should be broadened and extended with special consideration to employment needs and skills and to present and future labor market needs.

2. Programs and services should be provided to correct educational deficiencies or handicaps which prevent persons from benefiting from instruction essential to employment. Vocational guidance and counseling should be provided at all levels of programs, and recourse should be available to other social services and agencies where needed.

3. Special arrangements should be made to assist metropolitan and other areas having unique occupational education needs and where unique occupational problems exist.

4. Expansion of programs should be accompanied by a comprehensive large-scale program of research and demonstration in occupational education and related programs.

5. Programs should be planned to include persons of many age groups, of varying educational status, of divergent abilities and needs, and at all locations in the State. Existing educational agencies, new area facilities and community college facilities should be constructed and utilized as needed.

6. Vocational guidance, consisting of personal and educational guidance relating to occupational programs and employment opportunities, should be developed consistent with Goal #1. This service should be available to students, parents, and employers.

7. Work-study programs should be available to qualified youth to enable them to commence or continue occupational preparation in high schools and two-year colleges.

8. As a means of preparing adults to enter the labor market or to upgrade skills or acquire new ones, pre-employment training and retraining should be available to adults in schools and classes conducted by local public schools, area schools, two-year colleges and other public and private institutions. Practical related instruction, supplemental to on-the-job training, should be accessible to apprentices and other trainees throughout their work experience.

9. Occupational education and retraining should be provided by a variety of institutions and agencies, including high schools, community colleges, and other institutions and agencies. Where necessary, occupational education should be arranged with private educational institutions or agencies.

10. Programs should be coordinated under a State Plan, with emphasis on articulation of both general and occupational education at secondary and higher educational levels.

11. Leaders in education should improve their understanding with respect to the articulation of both general and occupational education at the secondary and two-year college levels.

12. Quality should be assured by improving administration, instruction, supervision, instructional materials, and leadership education. Programs and activities should be developed for this purpose.

13. State Board policies should be adopted to provide needed incentives to extend occupational education programs in all areas of the State, especially in areas where they are not now accessible, and to extend two-year college programs to more persons.

Adopted March 10, 1966

THE PROBLEM

Most of the States, including Pennsylvania have still not made substantive changes in their organizational pattern to carry out the purposes, responsibilities, functions and duties of State departments such as are expressed in the Pennsylvania State Board goals.

A review of the organizational structure of vocational education in all the States reveals that in three States the State director reports directly to a separate State Board for Vocational Education. In 33 States, the administrator of vocational education reports directly to the State Superintendent of Education. Fifteen of these vocational education administrators are designated as an assistant or associate superintendent while sixteen are designated as a State director. In another fifteen states, the State directors of vocational education report to an assistant or associate superintendent. Pennsylvania is among the latter group. The following is a listing of these States as reported in "A Nationwide Study of the Administration of Vocational-Technical Education at the State Level" in 1967 by the University of California at Berkeley:

Category I-a: 1st level of administration. State director of vocational education reports directly to a separate State board of vocational education.

Colorado
Indiana
Wisconsin

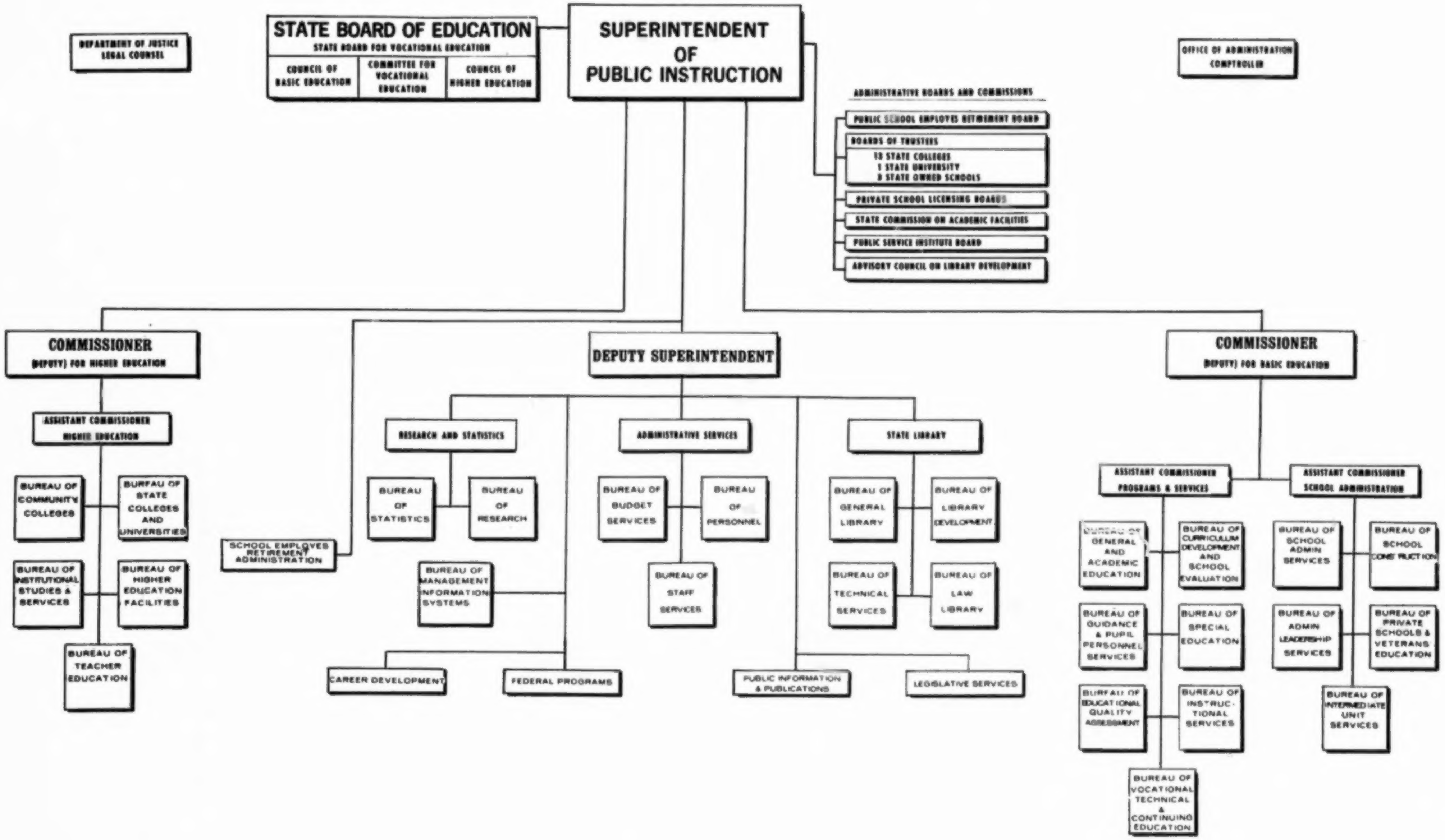
Category I-b: 1st level of administration. State director of vocational education reports to a State board having joint responsibility.

Kansas
Oklahoma

Category II-a: 2nd level of administration. State director of vocational education reports directly to the State superintendent as an assistant or associate superintendent.

Arkansas
Delaware
Florida
Louisiana
Michigan
Missouri
Nebraska
Nevada
New Jersey
Rhode Island
Tennessee
Texas
Vermont
West Virginia
Puerto Rico

DEPARTMENT OF PUBLIC INSTRUCTION
OF THE
COMMONWEALTH OF PENNSYLVANIA


DEPARTMENT OF JUSTICE
LEGAL COUNSEL
STATE BOARD OF EDUCATION
STATE BOARD FOR VOCATIONAL EDUCATION
COUNCIL OF BASIC EDUCATION
COMMITTEE FOR VOCATIONAL EDUCATION
COUNCIL OF HIGHER EDUCATION
SUPERINTENDENT OF PUBLIC INSTRUCTION
OFFICE OF ADMINISTRATION
COMPTROLLER
ADMINISTRATIVE BOARDS AND COMMISSIONS
PUBLIC SCHOOL EMPLOYES RETIREMENT BOARD
BOARDS OF TRUSTEES
13 STATE COLLEGES
1 STATE UNIVERSITY
3 STATE OWNED SCHOOLS
PRIVATE SCHOOL LICENSING BOARDS
STATE COMMISSION ON ACADEMIC FACILITIES
PUBLIC SERVICE INSTITUTE BOARD
ADVISORY COUNCIL ON LIBRARY DEVELOPMENT
COMMISSIONER
(DEPUTY) FOR HIGHER EDUCATION
ASSISTANT COMMISSIONER
HIGHER EDUCATION
BUREAU OF COMMUNITY COLLEGES
BUREAU OF STATE COLLEGES AND UNIVERSITIES
BUREAU OF INSTITUTIONAL STUDIES & SERVICES
BUREAU OF HIGHER EDUCATION FACILITIES
BUREAU OF TEACHER EDUCATION
SCHOOL EMPLOYES RETIREMENT ADMINISTRATION
DEPUTY SUPERINTENDENT
RESEARCH AND STATISTICS
BUREAU OF STATISTICS
BUREAU OF RESEARCH
BUREAU OF MANAGEMENT INFORMATION SYSTEMS
CAREER DEVELOPMENT
FEDERAL PROGRAMS
ADMINISTRATIVE SERVICES
BUREAU OF BUDGET SERVICES
BUREAU OF PERSONNEL
BUREAU OF STAFF SERVICES
STATE LIBRARY
BUREAU OF GENERAL LIBRARY
BUREAU OF LIBRARY DEVELOPMENT
BUREAU OF TECHNICAL SERVICES
BUREAU OF LAW LIBRARY
PUBLIC INFORMATION & PUBLICATIONS
LEGISLATIVE SERVICES
COMMISSIONER
(DEPUTY) FOR BASIC EDUCATION
ASSISTANT COMMISSIONER
PROGRAMS & SERVICES
BUREAU OF GENERAL AND ACADEMIC EDUCATION
BUREAU OF CURRICULUM DEVELOPMENT AND SCHOOL EVALUATION
BUREAU OF GUIDANCE & PUPIL PERSONNEL SERVICES
BUREAU OF SPECIAL EDUCATION
BUREAU OF EDUCATIONAL QUALITY ASSESSMENT
BUREAU OF INSTRUCTIONAL SERVICES
BUREAU OF VOCATIONAL TECHNICAL & CONTINUING EDUCATION
ASSISTANT COMMISSIONER
SCHOOL ADMINISTRATION
BUREAU OF SCHOOL ADMIN SERVICES
BUREAU OF SCHOOL CONSTRUCTION
BUREAU OF ADMIN LEADERSHIP SERVICES
BUREAU OF PRIVATE SCHOOLS & VETERANS EDUCATION
BUREAU OF INTERMEDIATE UNIT SERVICES

SEPTEMBER 6, 1968

Category II-b: 2nd level of administration. State director of vocational education reports to the State superintendent but not as an assistant or an associate superintendent, but as a State director.

Alabama
Alaska
Arizona
Connecticut
Idaho
Illinois
Kentucky
Minnesota
Mississippi
New Hampshire
New Mexico
North Dakota
South Carolina
South Dakota
Virginia
Washington

Category III: 3rd level of administration. State director of vocational education reports to an assistant or associate superintendent.

California
Georgia
Hawaii
Iowa
Maine
Maryland
Massachusetts
Montana
New York
North Carolina
Ohio
Oregon
Pennsylvania
Utah
Wyoming

As time goes on the State departments of vocational education find themselves more and more in a serious predicament organizationally and staff-wise in their efforts to carry out the over-riding purpose of the old and new vocational education legislation, namely, to make training opportunities readily accessible to all persons of all ages in all communities of the State.

THE PRESENT STRUCTURE

The present place and structure of the Bureau of Vocational, Technical and Continuing Education in the Department of Public Instruction as shown on the accompanying organization chart, does not provide the organizational level and pattern necessary to implement the Pennsylvania goals nor the expertise required to carry out the principal purposes of the new legislation, P.L. 90-576. (See the Personnel Analysis Matrix in Appendix C). The situation will be progressively worsened by the requirements of the new amendments which provide a maximum authorization of funds by 1971 and 1972 of approximately $1 billion, of which Pennsylvania's share would be about $80 million. Even more important than the prospect of sharply increased Federal funds is the earmarking of funds for specific purposes. Specific allocations are made for Cooperative Education; for Programs for the Disadvantaged; for Work Study Programs; for Exemplary and Innovative programs; for Residential Vocational Schools; for Curriculum Development; for Consumer Education, Home Environment or Improvement, and Family Life Education. In addition to these, funds are specifically earmarked for Teacher Education programs and Professional Leadership Development.

Most important of all in the new amendments are requirements for strengthening the Vocational Education State Advisory Councils both in representation and in responsibility. State Advisory Councils must review all short and long range vocational education plans and make an annual evaluation of the entire State program for Occupational Education. Such reports must be submitted for review by a National Advisory Council and the United States Commissioner of Education before Federal funds will be certified to the Commonwealth.

A further responsibility of the Bureau of Vocational, Technical and Continuing Education is that of the development of Continuing Education in the State both of a vocational and non-vocational nature. Recent Federal legislation encouraging basic education has added new responsibilities to the Bureau for the education of the aging, the consumer, and those enrolled in the anti-poverty programs.

All of these impacts, along with the serious program administration problems confronting the present Bureau, suggest and commend the changes in organization and administration recommended in this report. There is no attempt herein to justify these recommendations simply on the basis of seeking greater status and more prestige for vocational and continuing education in the state government hierarchy. The recommendations are, in fact, based on the findings of the Pennsylvania Study and the knowledge that a State vocational and continuing education agency will be under very severe tests in administering such a varied, extensive, and complex occupational and continuing education program.

BACKGROUND OF ANALYSIS

The organization and administration of vocational, technical and continuing education in Pennsylvania was examined in the light of the following conditions and events:

1. The serious administrative and program development problems encountered in the present organization.

2. A broadened concept of a total occupational and continuing education program in Pennsylvania and the legal responsibility of the State Board for Vocational Education in relation to occupational education and of the State Board of Education in relation to continuing education.

3. The general objective, policies and goals of the Pennsylvania vocational, technical and continuing education program.

4. The role, functions, responsibilities and duties of the State agency responsible for occupational and continuing education.

5. The results of a study to determine local vocational and continuing education administrative problems, and the need for improved communications with the State office.

6. A report on the field services and organization of the Bureau of Vocational, Technical and Continuing Education by a special Bureau task force.

7. The organizational demands of the continuous program planning and evaluation system developed in Chapter VI of the Pennsylvania Vocational Education Study.

8. Act 280, July 31, 1969 of the General Assembly of Pennsylvania amending Section 2508.3 of the Public School Code expanding and broadening the adult vocational education training and retraining programs.

9. The Vocational Education Amendments of 1968, P.L. 90-576, increasing the program activities of vocational and technical education; and greatly increased State Plan requirements for State and local program planning and evaluation.

10. The Governor's Executive Directive No. 66, August 16, 1968, relative to his' Manpower Task Force.

11. The impact of Act 580 of 1966 on continuing education in Pennsylvania.

12. The University of California Nationwide Study of the administration of vocational-technical education at the State level.

13. The University of Chicago National Opinion Research Center's Report #89 of the nature and scope of continuing education in the United States.

14. Rationale of the proposed Pennsylvania Intermediate Units.

RESPONSIBILITY OF THE STATE BOARD

The State is the keystone of the administration of the vocational and technical education program in the Federal-State-local structure of vocational education in the United States both for youth whose major occupation is attending school and for adults in vocational continuing education. This has been so since the inception of the three-way partnership in 1917 under the Smith-Hughes Act. That act provided that in order to secure the benefits of the appropriations any State shall, through legislation accept the provisions of the Act and designate or create a State Board having all necessary power to cooperate with the Federal agency in the administration of the provisions of the Federal Act. All subsequent Federal vocational education Acts reaffirmed that the State Board shall be the sole agency for the administration of vocational education under the provisions of the Federal Acts and the State Plan for Vocational Education. Thus the State Board forms the principal administration and communication link with local school boards and the Federal administrative agency.

Pennsylvania long since has legislated the acceptance of the benefits of Federal vocational education legislation and has designated the State Board of Education as the Board to administer the vocational education program. It is important to note that this process, by law, places duties and responsibilities on the State Board that go beyond simply budgeting and accounting for Federal funds that come to the State. The board is responsible for the development and approval of the State Plan which contains the required standards and conditions under which a vocational education program is established, operated and aided. Therefore, the Board has the duty of administering policies, rules and regulations related to the State and local funds that are expended on qualified programs as well as for the Federal moneys. Of course, the State Board delegates certain duties and responsibilities to the Department of Public Instruction but it must maintain the final responsibility for the outcomes of the State's programs.

Increasingly, the State Board and the Department of Public Instruction are directly concerned and involved in the activities and goals of all other State agencies. For example, the responsibilities of the Governor's Manpower Task Force under Executive Directive No. 66 are directly concerned with the process and product of vocational education. As this report reveals elsewhere, all of the operations of the State including economic planning, the development of a skilled work force, employment and unemployment are of direct concern to vocational education plans and programs. This report also reveals that the public vocational education programs of Pennsylvania contributed more than half of the graduates of all occupational training programs in the State in 1967.

Similarly the State Board of Education has primary responsibility for the administration of continuing education in the public schools, state universities and colleges, public community colleges and the State Library. It has delegated certain responsibilities to the Department of Public Instruction, and some responsibilities to the State Universities, but here, again, the State Board must assume final responsibility for the State program.

The State Board of Education and the Department of Public Instruction are also concerned and involved, indirectly at least, in the activities and goals of continuing education of all other State agencies. For example, the Department of Agriculture, through the Cooperative Extension Services and the Office of Aging of the Department of Welfare, are also charged with responsibilities of continuing education of adults. It is important that the State Board and the Department of Public Instruction continuously review the policies governing occupational and continuing education to see that the program is in harmony and well coordinated with all other State programs. The implementation of the State Board goals by the Bureau of Vocational, Technical and Continuing Education will provide the occupational and continuing education needed in the Commonwealth to meet the demands of society and the changing labor market.

It is very likely that no single or fixed form of organization will prove to be entirely satisfactory in carrying out all of the occupational and continuing education responsibilities of a State agency. There is need, therefore, to design and adopt a form of organization that would in the judgment of the Department of Public Instruction and the State Board carry out these responsibilities most efficiently and effectively. In the process of developing a suitable organization, the need for State-wide coordination of all manpower development and training activities should not be overlooked or minimized. Neither should the need for continuous State-wide planning of occupational training programs be overlooked.

In connection with State-wide occupational and continuing education program planning, it appears that a systems approach is not only a logical step but a necessary one. By this means it would be possible to utilize the important relevant economic and manpower data and information continuously in the system so that valid current information would be available at all times to assist State and local authorities in decision-making in planning new or expanded programs. The success of such a system would undoubtedly depend greatly upon an effective program of continuous research and evaluation. Above all, the functions and the form of organization will require an adequate qualified staff. Without adequate skilled staff services both the organization and the functions will prove to be meaningless.

All that has been said is also applicable to the vocational continuing education of adults. The State Board for Vocational Education, through the State Plan for Vocational Education, provides a variety of opportunities and services designed to serve adults as well as youth in entering into and progressing in gainful jobs in the labor force.

NON-VOCATIONAL CONTINUING EDUCATION

The other aspect of continuing education is non-vocational, designed to aid the adults of the State to become better informed as citizens, parents and constructive participants in the community. There is clear-cut precedent that both Federal and State legislation in the United States have accepted a role in non-vocational as well as vocational continuing education of adults. Through one or another of its departments, the Commonwealth of Pennsylvania has given financial aid, services and encouragement to adults in local communities in public health education. home and family life education, consumer education, education of the aging, museum and public library education. Through the Division of Continuing Education of the Bureau of Vocational and Continuing Education, the State has recognized its non-vocational education role in basic education of adults, civil defense education and, prior to 1964, high school completion education and general adult education.

There is no single catalyst in the State of Pennsylvania for all of these non-vocational adult education services. But the State Board of Education through the Department of Public Instruction is the chief catalyst for at least four continuing educational agencies in non-vocational programs:

(1) Public Schools
(2) State-owned Universities and Colleges
(3) Community Colleges
(4) Public Service Institute

The Bureau of Vocational and Continuing Education has operated primarily through the public school districts. The State-owned universities and colleges have communicated with the State primarily through the Bureau of Colleges and Universities. The community colleges have channeled their concerns for continuing education through the Bureau of Community Colleges. Public Service Adult Education has operated through the Board of the Institute of Public Service, but is fiscally dependent on funds allocated by the Bureau of Vocational, Technical and Continuing Education. All of these have been concerns of the State Board of Education through the Department of Public Instruction.

CONTINUING EDUCATION IN THE DEPARTMENT OF PUBLIC INSTRUCTION

The role of the State in non-vocational continuing education needs to be more clearly defined at two levels:

(1) At the level of the State Board of Education within the Department of Public Instruction, and

(2) At the interdepartmental level of the State government.

There is need for closer coordination and more clear lines of liaison between the Bureau of Vocational and Continuing Education, The Bureau of Colleges and Universities, The Bureau of Community Colleges, The Institute of Public Service and the State Library, in planning and developing non-vocational continuing education. The common concern of all of these agencies of the Department of Public Instruction in continuing education is to improve State leadership in schools, universities and colleges, governmental agencies and libraries in non-vocational continuing education to help adults learn:

- To become better informed and more constructive citizens of their communities and parents in their homes.

- To plan to make more constructive and worthy uses of their leisure time.

CONTINUING EDUCATION AT THE INTERDEPARTMENTAL LEVEL

Twenty-five million adults are enrolled in some form of adult education in the United States in programs sponsored by various public and private organizations. In all of these programs there are certain common concerns which the Department of Public Instruction is uniquely equipped to take initiative and leadership, working closely, of course with other departments in the State.

Just as in vocational and technical education, there is need to design and adopt a form of organization that would in the judgment of the Department of Public Instruction and the State Board of Education, carry out these responsibilities most effectively and efficiently. In the process of developing a suitable organization the need for coordination of planning and developing continuing education in schools, universities and colleges and libraries should not be overlooked. Likewise, the broader role of the State in serving, within its legal limitations, all agencies of continuing education in the total adult education enterprise should not be minimized.

As in vocational education, functions and responsibilities in continuing education will require an adequate qualified staff. Otherwise, this part of the organization and its functions will be meaningless.

FUNCTIONS, RESPONSIBILITIES AND DUTIES

In order to implement policies into meaningful action programs, it is essential that the role of an occupational and continuing education agency and its general and specific functions, duties, and responsibilities be identified and adopted. The major vocational, technical and continuing education functions, responsibilities and duties of such an agency have been identified under three general classifications, (1) Administrative and Legal, (2) Supervisory, and (3) Ancillary Professional Services:

1. Administrative and Legal

a. Develop and carry out the provisions of the State Plan for Vocational and Technical Education in accordance with the Federal and State Acts and Regulations. Amend the State Plan as necessary. Develop a State Plan for Continuing Education.

b. Develop and carry out the State's program plans as projected in the Annual Projected Program of Activities.

c. Prepare and submit to the U.S. Office of Education the annual financial, statistical, and descriptive reports and special reports as requested by the U. S. Commissioner.

d. Develop and carry out State policies on program planning, development, and operation in accordance with the provisions of the State Plans.

e. Develop and carry out policies for financing, including advances and reimbursements, local and institutional occupational training programs of all kinds.

f. Develop and carry out a systematic approach to State-wide Program Planning taking into account all important relevant data and information which make impact on occupational training.

g. Renew and approve the financing of local and institutional programs.

h. Keep the State Superintendent and the State Board for Vocational Education fully informed currently on the progress and problems in the program and recommend revised policies and procedures.

i. Develop and maintain close working relationships with all appropriate agencies and Staff in the Department of Public Instruction.

j. Set up and maintain adequate and efficient statistical records, and reporting system on all program operations.

k. Set up and maintain an efficient accounting and reporting system of all financial obligations and expenditures.

l. Set up and maintain working relationships with Federal and State governmental agencies as well as appropriate labor, agricultural, business and industrial organizations.

m. Establish and maintain close working relationships with the Bureau of Community Colleges and other public and private post-high school institutions.

n. Prepare and submit annual budgets for the total program operations to the State Board with recommendations for action.

o. Set up and conduct an extensive continuous program of State and local leadership development, pre-service and in-service.

p. Establish and carry out a continuous program of public information about the purpose, nature and results of all occupational training.

2. Supervisory

a. Conduct a thorough program review and evaluation of all local and institutional programs at least once each year in order to check effectiveness and compliance with the provisions of the State Plan.

b. Give leadership to and assist directly in planning new and expanded secondary and postsecondary programs including consultation in the structuring and conduct of field surveys of needs and demands.

c. Review and recommend for action proposed plans for establishing new and expanded local and institutional programs including plans for physical facilities and instructional equipment.

d. Give leadership to and assist in the promotion and development of adult occupational training programs, and continuing education programs.

e. Give leadership to and assist in the promotion and development of programs to meet the special needs of the disadvantaged and minority groups.

f. Give leadership to and assist in the promotion and development of innovative, exemplary and demonstration programs of all kinds.

g. Give leadership to and assist in the recruitment and education of qualified teachers and other personnel.

h. Maintain continuous communication with local and institutional operating personnel.

i. Provide continuous supervision with the objective of upgrading and improving local and institutional programs.

j. Review and process reports from local and institutional programs for payment.

3. Ancillary Professional Services

   a. Arrange for and provide needed teacher education programs, pre-service and in-service.

   b. Give leadership to and assist in the development and conduct of meaningful programs of occupational information and career development services and adult educational guidance and counseling through close working relationships with the Bureau of Guidance Services.

   c. Give leadership to and assist in the development of appropriate curriculum and instructional materials.

   d. Develop and maintain continuous liaison and close working relationships with the Research Coordinating Unit and other research agencies to keep the agency fully and currently informed on research activities and results.

CONCLUSIONS AND RECOMMENDATIONS

It seems apparent that if the Commonwealth of Pennsylvania is to commit itself realistically to a meaningful manpower and citizenship development policy, the particular agency selected to administer the program must be organized and situated in the Department of Public Instruction structure so as to assure the desired results. The form of such an organization, fitted to function, is one thing; the place of the organization in the department is another, but equally important.

There is extreme difficulty encountered in communication throughout the present organization of 204 personnel of which 142 are professional positions. (See Appendix C). Professional personnel are scattered in the field with reporting or administrative lines to the various State Supervisors of Vocational and Continuing Education Services in Harrisburg.

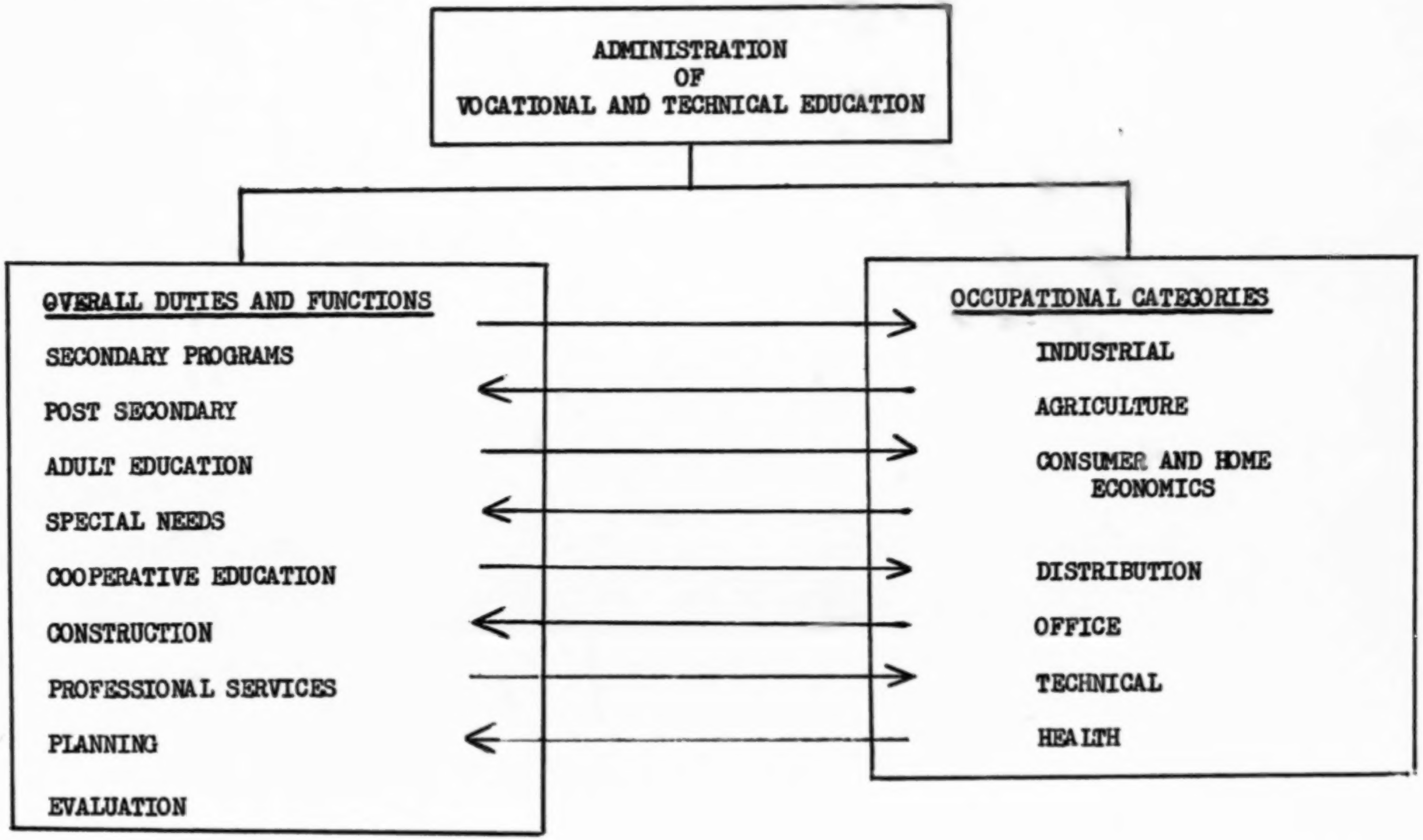
Each occupational and continuing education service has its own administrative procedures including separate report forms, different amounts of aid, procedures, and policies. Many staff members in the field are attached to colleges or universities and have mingled administrative and teacher education responsibilities. In brief, there is serious lack of close coordination and communication between field personnel in all services and the bureau administration in Harrisburg.

The central bureau office is expected to administer the programs authorized by the various Federal and State Acts in the development and training of manpower and continuing education in the State. Its chief responsibility is to provide leadership to vocational, technical and continuing education programs in terms of the needs of people and employers and other agencies of the community. More specifically, it is expected to develop and implement policies, program planning, program

CHART 6

THE BASIC CURRENT PROBLEM IN STATE ADMINISTRATION OF VOCATIONAL AND TECHNICAL EDUCATION

HOW CAN STATE STAFF AND OTHER RESOURCES BE ORGANIZED TO DISTINGUISH AND AT THE SAME TIME UNITE THE TWO MAJOR ASPECTS OF VOCATIONAL EDUCATION: BROAD OVERALL DUTIES AND FUNCTIONS OF VOCATIONAL EDUCATION AND THE MAJOR OCCUPATIONAL FIELDS WHICH EMBRACE ALL NON-PROFESSIONAL JOBS.


ADMINISTRATION
OF
VOCATIONAL AND TECHNICAL EDUCATION
OVERALL DUTIES AND FUNCTIONS
SECONDARY PROGRAMS
POST SECONDARY
ADULT EDUCATION
SPECIAL NEEDS
COOPERATIVE EDUCATION
CONSTRUCTION
PROFESSIONAL SERVICES
PLANNING
EVALUATION
OCCUPATIONAL CATEGORIES
INDUSTRIAL
AGRICULTURE
CONSUMER AND HOME ECONOMICS
DISTRIBUTION
OFFICE
TECHNICAL
HEALTH

evaluation, professional services, and technical advice and assistance to attain the objectives and goals of the total program in the State.

The proposed central office organization is designed to tie together the principal overall functions of a State agency under existing and impending important functions and responsibilities of vocational and continuing education, namely, Program Planning, Program Services, Program Evaluation and Program Operation. Program services and program evaluation would serve primarily as liaison to the appropriate Bureaus in the Department of Public Instruction for those functions. Each of the principal divisions should be staffed to the extent possible with a mix of qualified professionals representative of the various occupational services and the specializations of continuing education. In this way, the basic administrative issue posed in Chart No. 6 could be fairly well resolved.

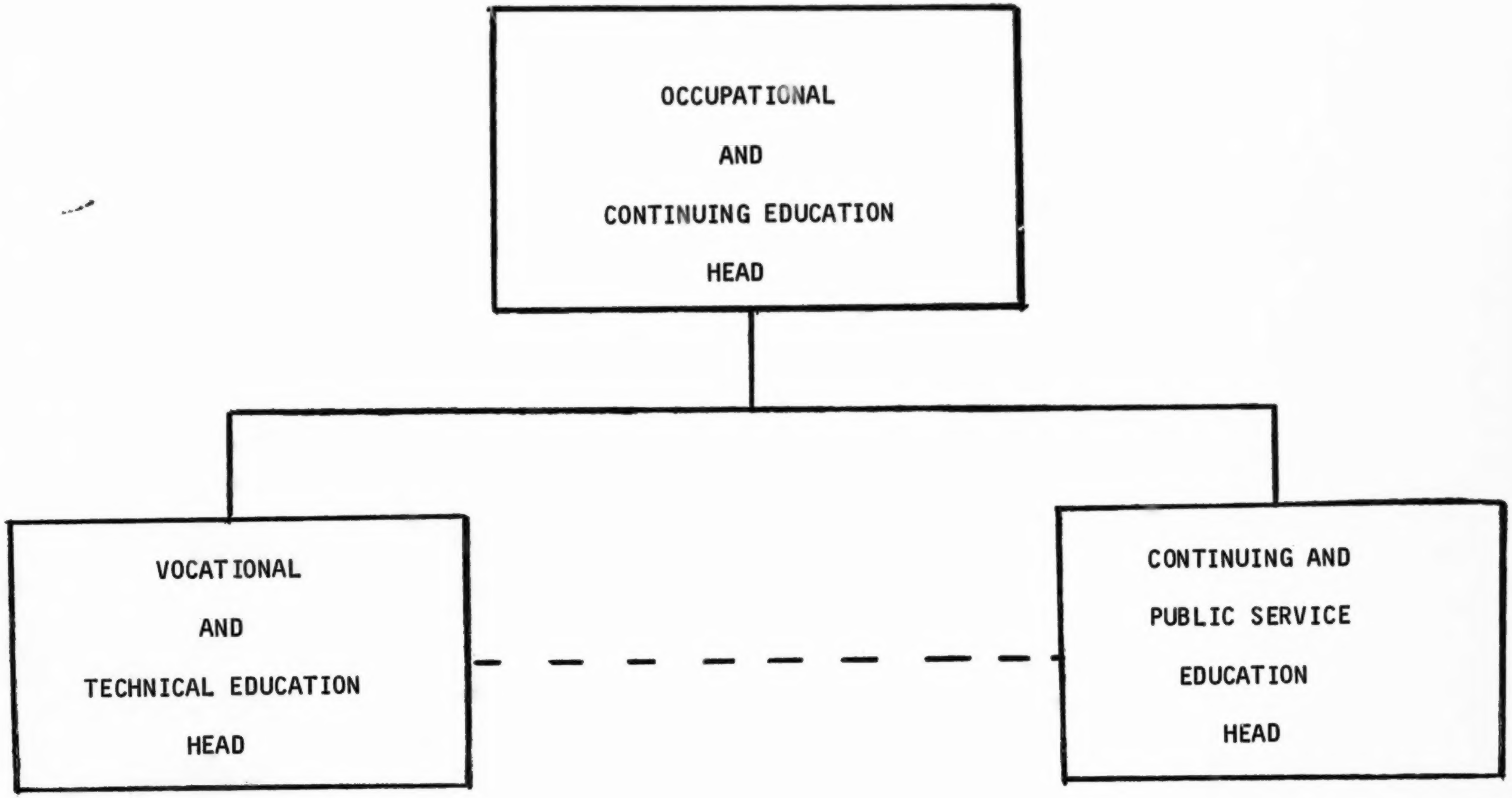
Informal communication lines would need to be developed so that effective interaction between divisions is possible at all times. This kind of interaction would permit the functioning of teams within the vocational and continuing education agency to work on program problems or special projects of different kinds. At the same time, formal administrative lines should be observed and followed on major policy or administration issues and problems. Of the utmost importance would be continuous effective communication between all parts of the organization, including the field services, so that all professional staff are adequately and equally informed on the activities of the whole agency. By this process the principal functions would be integrated. For example, evaluation would become an inherent part of the planning process. Likewise, the professional services would be directly related and applied to operational problems and needs. The field services in five branch offices would be direct arms of the central office.

The purpose of the suggested reorganization is not to isolate or separate occupational and continuing education from the Basic and Higher Education programs but rather to insure its integration beginning at the highest possible administrative level in the Department of Public Instruction. It is believed that such integration could be accomplished most effectively by the State Superintendent at his level of administration.

The five organization charts and five maps are designed to present graphically the recommended reorganization of the Bureau of Vocational, Technical and Continuing Education.

Chart 7 portrays the recommendation that the overall administration of a State-wide occupational and continuing education program should be headed by an administrator as close as possible to the State Superintendent, preferably by a deputy commissioner. This chart also portrays the recommendation that vocational and technical education, and continuing education should be divided into two bureaus, each headed by a director reporting directly to the overall administrator. Such an

CHART 7


OCCUPATIONAL
AND
CONTINUING EDUCATION
HEAD
VOCATIONAL
AND
TECHNICAL EDUCATION
HEAD
CONTINUING AND
PUBLIC SERVICE
EDUCATION
HEAD

arrangement would provide for the State Board and the State Superintendent to assure State-wide coordination of all manpower training activities and the continuous communication needed to implement the recommendations contained in Chapter VI. This would also provide for the badly needed expansion and improvement of all adult education programs and services.

Chart 8 shows the recommended detailed divisions and units designed to carry out the major functions of a new organization for vocational and technical education. There are differences of opinion about separating or combining the program planning and program evaluation divisions. In the systems approach, evaluation is an inherent part of planning. However, the recommendation to separate them here is based upon the premise that this is the better way to assure that evaluation will be worked on continuously without the hazard of being subordinated, even inadvertently, to the many planning duties and responsibilities. If separated, the two divisions would need to work together very closely but each could devote its energy and attention full-time to these two very important functions.

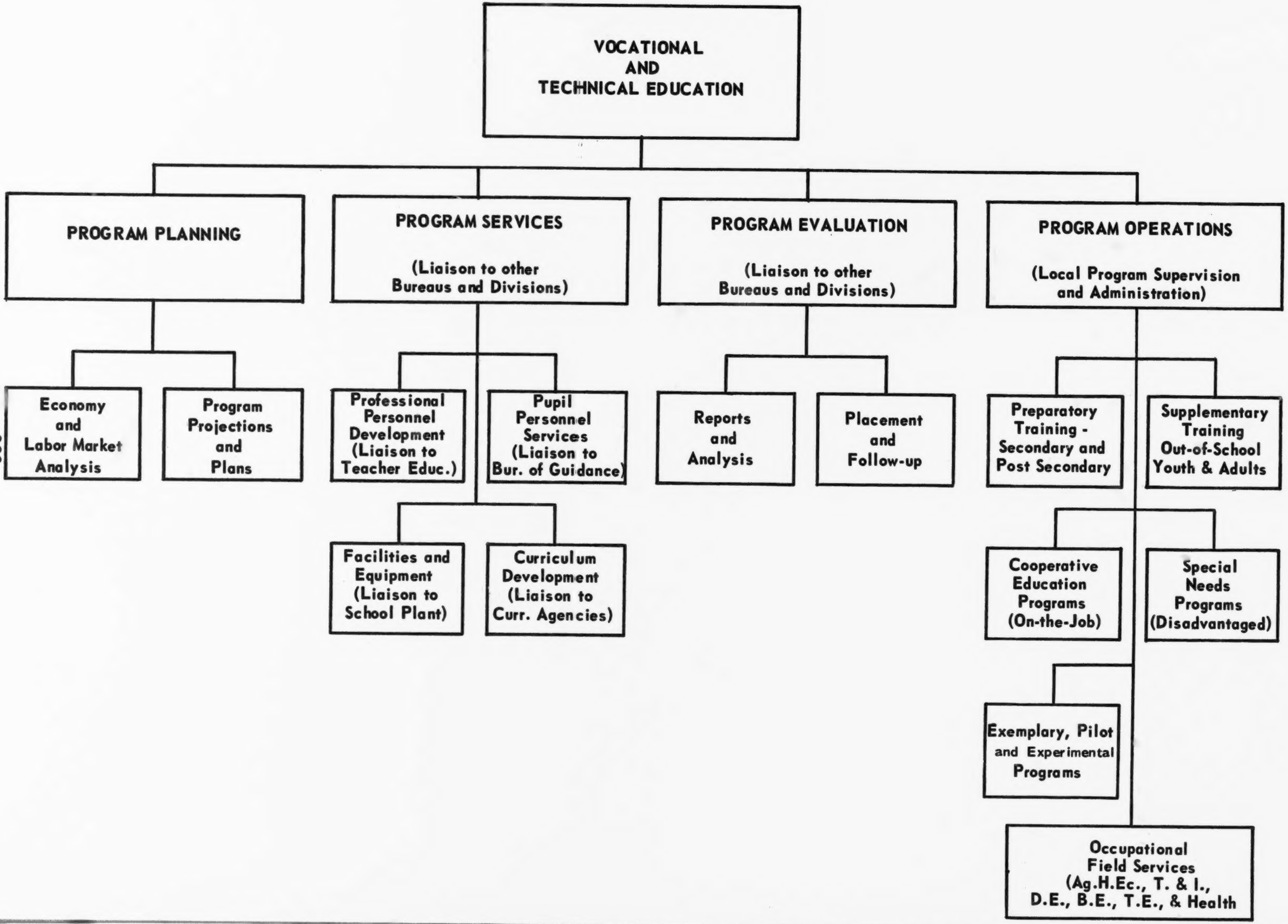
The program planning division would be responsible for the implementation of the systematic planning procedure described in Chapter VI. This would include continuous analyses and interpretation of economic data and information as well as labor market demands, trends, and projections. This information and data, obtained and assembled continuously by the Research Coordinating Unit, would be supplied to the planning division for interpretation and use in the State-local program planning procedure portrayed in Chart 3, Chapter VI.

The program services division would be responsible for establishing and maintaining continuous liaison with the other appropriate bureaus and divisions in the Department of Public Instruction and with the colleges and universities in their participation in all professional services and development activities. Establishment of this division would assure coordination and implementation of the various programs and activities in curriculum development, teacher education, vocational guidance, counseling and placement services and professional leadership development.

The program operation division would be responsible for local program supervision and administration in terms of the major program purposes of the State plan and the vocational education laws. This division would also provide necessary occupational specialist services through the five field offices.

The descriptions, the functions, responsibilities and duties of each of the four divisions and their respective units are not included in this report but have been made available to the Bureau of Vocational, Technical and Continuing Education and to the Research Coordinating Unit.

CHART 8 - VOCATIONAL AND TECHNICAL EDUCATION

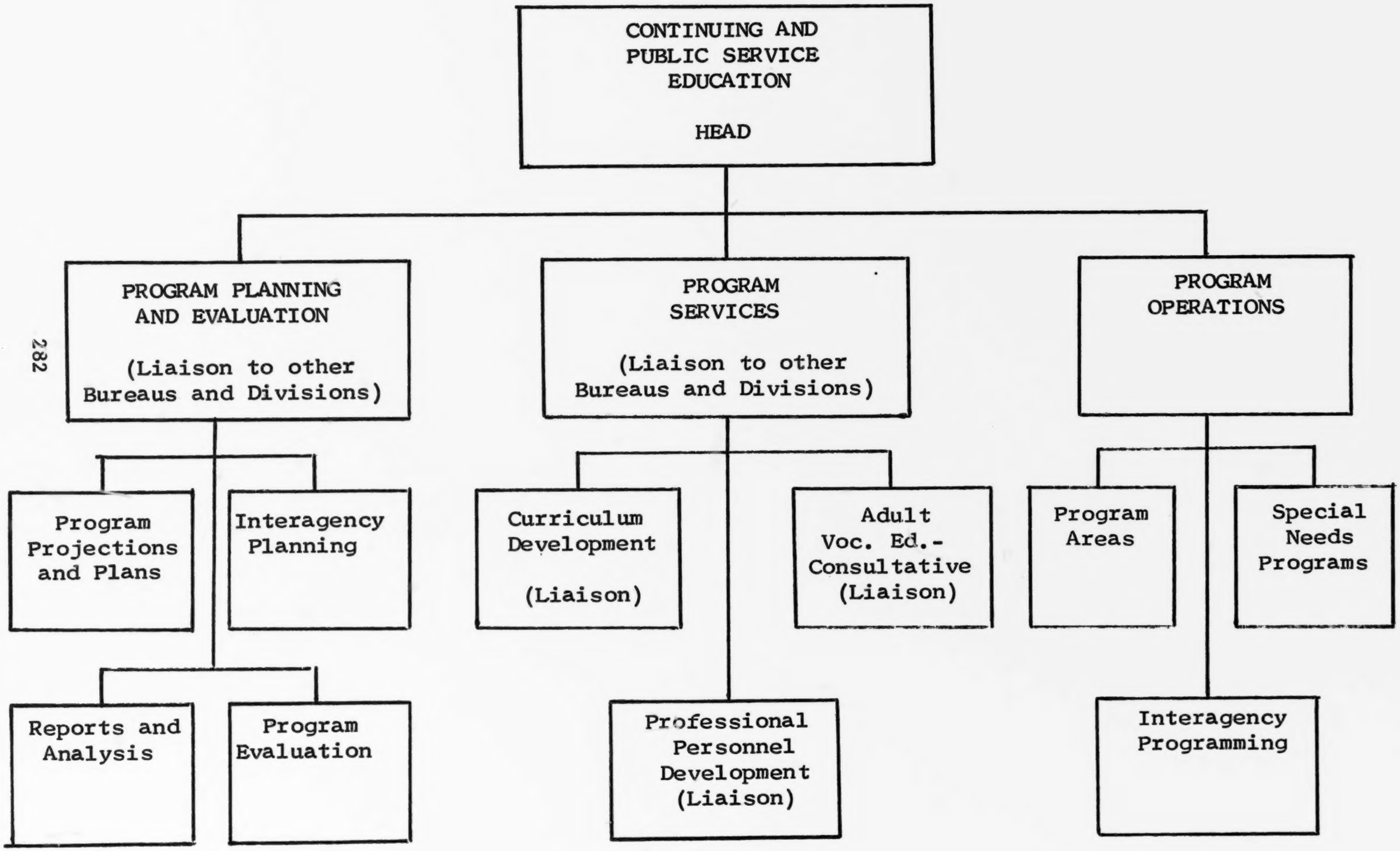

VOCATIONAL AND TECHNICAL EDUCATION
PROGRAM PLANNING
PROGRAM SERVICES (Liaison to other Bureaus and Divisions)
PROGRAM EVALUATION (Liaison to other Bureaus and Divisions)
PROGRAM OPERATIONS (Local Program Supervision and Administration)
Economy and Labor Market Analysis
Program Projections and Plans
Professional Personnel Development (Liaison to Teacher Educ.)
Pupil Personnel Services (Liaison to Bur. of Guidance)
Facilities and Equipment (Liaison to School Plant)
Curriculum Development (Liaison to Curr. Agencies)
Reports and Analysis
Placement and Follow-up
Preparatory Training - Secondary and Post Secondary
Supplementary Training Out-of-School Youth & Adults
Cooperative Education Programs (On-the-Job)
Special Needs Programs (Disadvantaged)
Exemplary, Pilot and Experimental Programs
Occupational Field Services (Ag.H.Ec., T. & I., D.E., B.E., T.E., & Health

The Continuing and Public Service Education organization, Chart 9, headed by a director or an administrator is also based on the fundamental functional requirements of program planning and evaluation, program services and program operations. The general or overall responsibilities and duties of this part of the organization would be similar to those recommended for vocational and technical education but, in this case, would be applicable to continuing education.

This arrangement would provide for the considerably increased promotion, expansion and improvement of adult education programs, services and activities that are so necessary to improve the Pennsylvania competitive posture described in Chapter IV. In this case, planning and evaluation have been combined, in order to conserve on staff expense. After a reasonable period of operation, it may be deemed advisable to separate these functions into two units as suggested in the case of vocational and technical education. Regardless, the two functions are inherently bound together and each must be constantly involved with the other in an iterative process.

The descriptions of functions and responsibilities of the various units in Chart 9 are not included in this chapter but they are available in the Bureau of Vocational, Technical and Continuing Education and the Research Coordinating Unit.

CHART 9--CONTINUING AND PUBLIC SERVICE EDUCATION

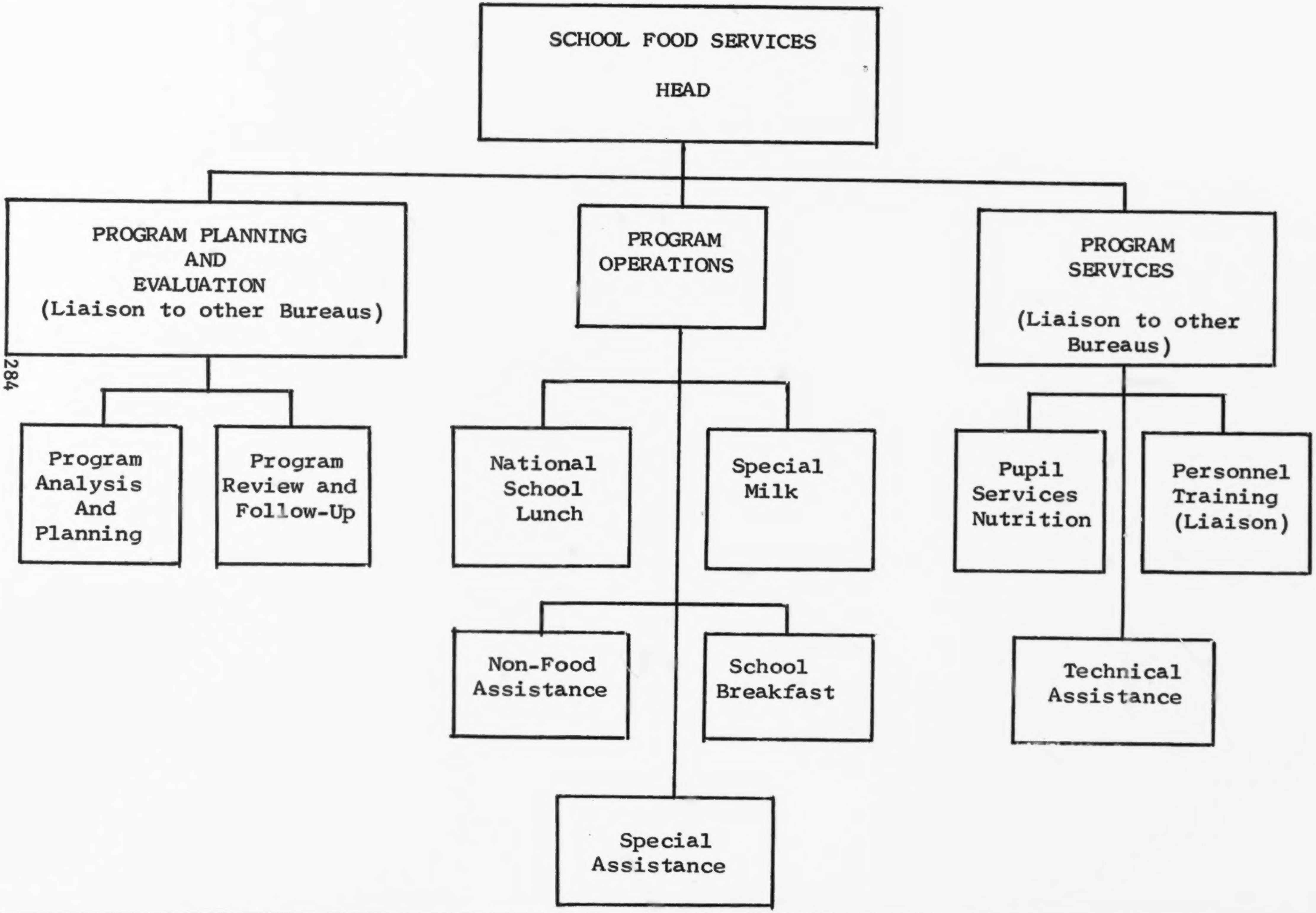

CONTINUING AND PUBLIC SERVICE EDUCATION
HEAD
PROGRAM PLANNING AND EVALUATION
(Liaison to other Bureaus and Divisions)
PROGRAM SERVICES
(Liaison to other Bureaus and Divisions)
PROGRAM OPERATIONS
Program Projections and Plans
Interagency Planning
Reports and Analysis
Program Evaluation
Curriculum Development
(Liaison)
Adult Voc. Ed.-Consultative (Liaison)
Professional Personnel Development (Liaison)
Program Areas
Special Needs Programs
Interagency Programming

SCHOOL FOOD SERVICES

The administration and operation of the School Food Services has been carried on since 1956 by the Home Economics division of the Bureau of Vocational, Technical and Continuing Education. Although the operation has been efficient and effective, there are serious questions as to the appropriateness of this service in the present Bureau and the effect upon the Home Economics professional service to local programs.

Chart 10 proposes an internal reorganization of the Service that stresses planning and evaluation, services and operations. Although there are some educational aspects of the service, it is primarily an administrative service. It is suggested that consideration be given to the transfer of this service to the Administrative Service in the Department of Public Instruction.

CHART 10--SCHOOL FOOD SERVICES


SCHOOL FOOD SERVICES HEAD
PROGRAM PLANNING AND EVALUATION (Liaison to other Bureaus)
PROGRAM OPERATIONS
PROGRAM SERVICES (Liaison to other Bureaus)
Program Analysis And Planning
Program Review and Follow-Up
National School Lunch
Special Milk
Non-Food Assistance
School Breakfast
Special Assistance
Pupil Services Nutrition
Personnel Training (Liaison)
Technical Assistance

THE FIELD ORGANIZATION AND SERVICES

The field organization is designed to provide maximum effective service and assistance to local programs. The field offices would be staffed adequately with good balance between those handling overall responsibilites in the program and qualified occupational specialist personnel. Each field office and staff would be headed by a capable vocational education administrator who would report directly to their respective heads of the two principal divisions.

Each region is designed to tie in with the newly proposed intermediate units, labor market areas, community college technical institute service areas, vocational education attendance areas and area vocational-technical schools as illustrated in the five maps. This organization of field service would bring the talents of the present staff together into a unified operation in five locations.

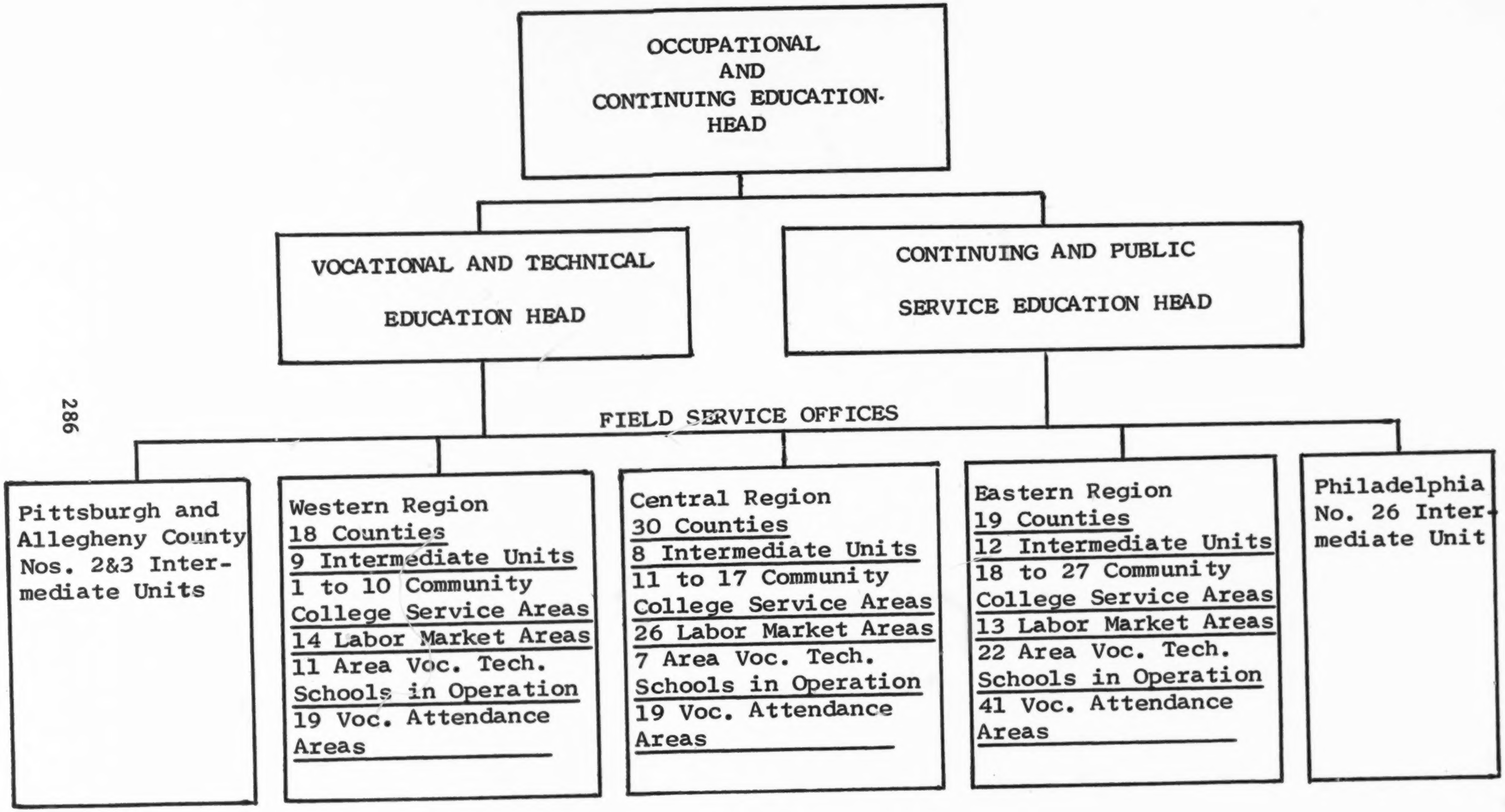
The number of regions is reduced to a minimum of three moderate sized urban and rural areas and two large city areas as shown on Chart 11 and Map No. 1. In this way, the span of control for the division heads is manageable and the number of top level staff reporting to the head administrator is kept to a minimum. Three of the field offices should be located in some central city in each region so as to provide for staff to be readily available to local programs. The other two would be located in Philadelphia and Pittsburgh.

The large city study reveals that very little if any program expansion has taken place in Philadelphia since the passage of the Vocational Education Act of 1963. There are several serious vocational education problems in both Philadelphia and Pittsburgh, peculiar to large cities as described in Chapter XII. Therefore, the State should take greater responsibility for communicating with large cities working on their problems by establishing field offices and staff in Philadelphia and Pittsburgh. This arrangement would provide constant and continuous service and assistance in the large city program planning, and development, and evaluation.

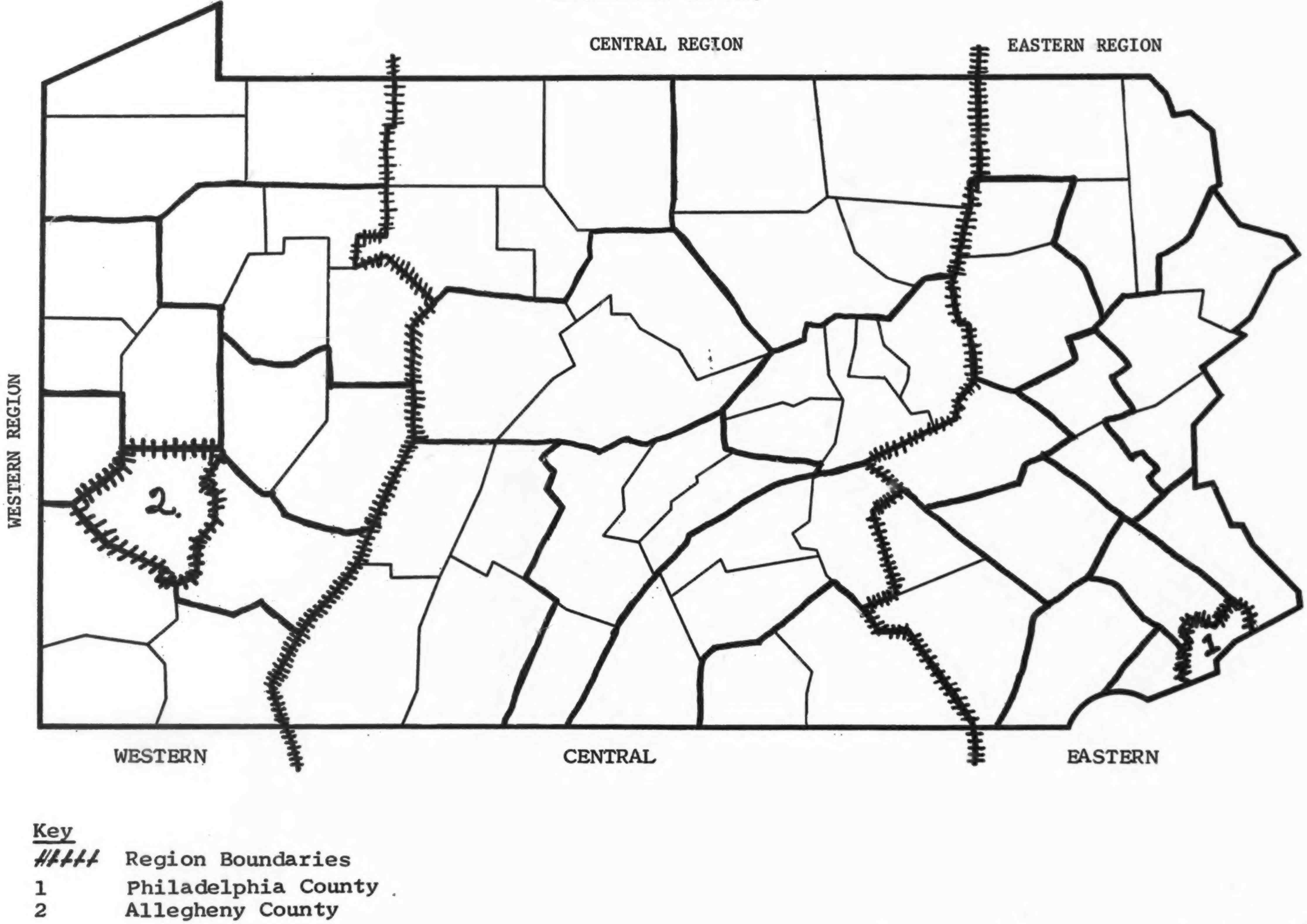
There is no intention in these conclusions and recommendations to minimize the value and importance of the association of field personnel with any of the colleges and universities. The principal points are first to unify the entire administrative and supervisory staff of the present Bureau of Vocational, Technical and Continuing Education and secondly, to have the colleges and universities assume a greater role and responsibility in research, professional leadership development, curriculum development and expansion and improvement of undergraduate and graduate teacher education programs. Substantial funds for these activities are earmarked in authorization in the new vocational education act, P.L. 90-576. In this way, the State office and the higher education institutions could each contribute greatly to the expansion and improvement of the Pennsylvania program in accordance with their respective roles, purposes and responsibilities. Of course, there would still be need for close working relationships between the two but in a much more clearly defined manner than now exists.

Maps two through five portray the groupings of the various educational, service and labor market areas of the Commonwealth, used in the determination of the administrative regions for occupational and continuing education as shown on Map No. 1.

CHART 11 - FIELD SERVICES

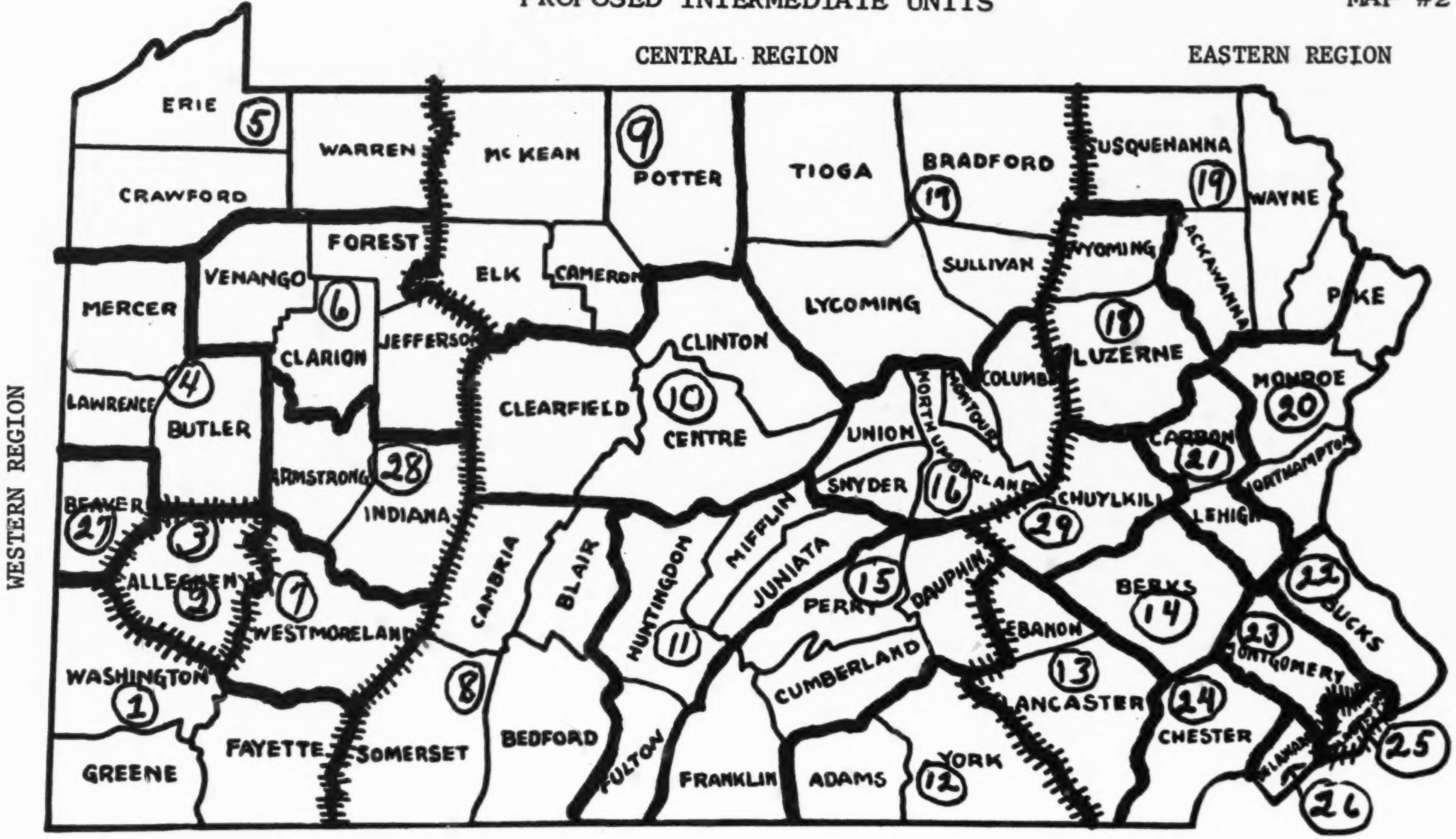

OCCUPATIONAL AND CONTINUING EDUCATION. HEAD
VOCATIONAL AND TECHNICAL EDUCATION HEAD
CONTINUING AND PUBLIC SERVICE EDUCATION HEAD
FIELD SERVICE OFFICES
Pittsburgh and Allegheny County Nos. 2&3 Intermediate Units
Western Region
18 Counties
9 Intermediate Units
1 to 10 Community College Service Areas
14 Labor Market Areas
11 Area Voc. Tech. Schools in Operation
19 Voc. Attendance Areas
Central Region
30 Counties
8 Intermediate Units
11 to 17 Community College Service Areas
26 Labor Market Areas
7 Area Voc. Tech. Schools in Operation
19 Voc. Attendance Areas
Eastern Region
19 Counties
12 Intermediate Units
18 to 27 Community College Service Areas
13 Labor Market Areas
22 Area Voc. Tech. Schools in Operation
41 Voc. Attendance Areas
Philadelphia No. 26 Intermediate Unit

ADMINISTRATIVE REGIONS FOR OCCUPATIONAL AND CONTINUING EDUCATION IN PA. MAP #1


CENTRAL REGION
EASTERN REGION
WESTERN REGION
2.
1
WESTERN
CENTRAL
EASTERN
Key
#### Region Boundaries
1 Philadelphia County
2 Allegheny County

PROPOSED INTERMEDIATE UNITS

MAP #2

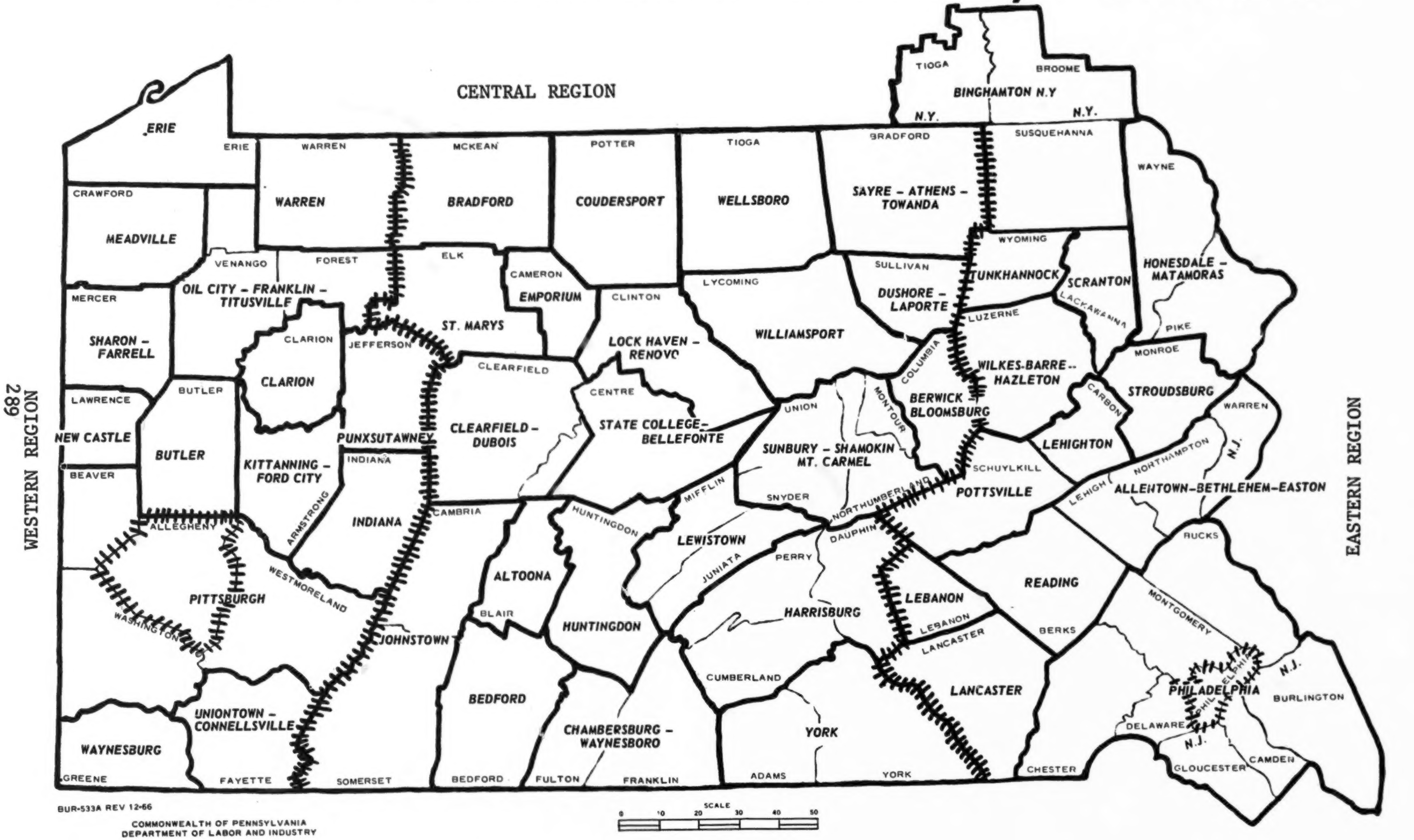

CENTRAL REGION
EASTERN REGION
WESTERN REGION
ERIE
5
WARREN
McKEAN
9
POTTER
TIOGA
BRADFORD
17
SUSQUEHANNA
19
WAYNE
CRAWFORD
FOREST
VENANGO
6
ELK
CAMERON
SULLIVAN
LYCOMING
WYOMING
LACKAWANNA
PIKE
MERCER
CLARION
JEFFERSON
CLINTON
18
LUZERNE
COLUMBIA
MONROE
20
LAWRENCE
4
BUTLER
CLEARFIELD
10
CENTRE
UNION
NORTHUMBERLAND
MONTOUR
CARBON
21
NORTHAMPTON
ARMSTRONG
28
INDIANA
SNYDER
16
SCHUYLKILL
29
LEHIGH
BEAVER
27
3
ALLEGHENY
2
7
WESTMORELAND
CAMBRIA
BLAIR
HUNTINGDON
11
MIFFLIN
JUNIATA
15
PERRY
DAUPHIN
LEBANON
BERKS
14
22
BUCKS
23
MONTGOMERY
WASHINGTON
1
8
CUMBERLAND
13
LANCASTER
24
CHESTER
GREENE
FAYETTE
SOMERSET
BEDFORD
FULTON
FRANKLIN
ADAMS
YORK
12
DELAWARE
PHILADELPHIA
25
26

Key

① Unit Number

Labor Market Areas of Pennsylvania

MAP #3


CENTRAL REGION
WESTERN REGION
EASTERN REGION
TIOGA
BROOME
BINGHAMTON N.Y
N.Y.
N.Y.
ERIE
ERIE
WARREN
MCKEAN
POTTER
TIOGA
BRADFORD
SUSQUEHANNA
WAYNE
CRAWFORD
MEADVILLE
WARREN
BRADFORD
COUDERSPORT
WELLSBORO
SAYRE - ATHENS - TOWANDA
WYOMING
VENANGO
FOREST
ELK
CAMERON
EMPORIUM
SULLIVAN
TUNKHANNOCK
SCRANTON
LACKAWANNA
HONESDALE - MATAMORAS
MERCER
OIL CITY - FRANKLIN - TITUSVILLE
CLINTON
LYCOMING
DUSHORE - LAPORTE
LUZERNE
PIKE
SHARON - FARRELL
CLARION
JEFFERSON
ST. MARYS
LOCK HAVEN - RENOVO
WILLIAMSPORT
COLUMBIA
WILKES-BARRE - HAZLETON
MONROE
CLARION
CLEARFIELD
CENTRE
MONTOUR
BERWICK - BLOOMSBURG
CARBON
STROUDSBURG
LAWRENCE
BUTLER
UNION
WARREN
NEW CASTLE
BUTLER
PUNXSUTAWNEY
CLEARFIELD - DUBOIS
STATE COLLEGE - BELLEFONTE
SUNBURY - SHAMOKIN MT. CARMEL
LEHIGHTON
NORTHAMPTON
N.J.
INDIANA
KITTANNING - FORD CITY
SCHUYLKILL
BEAVER
SNYDER
POTTSVILLE
LEHIGH
ALLENTOWN-BETHLEHEM-EASTON
MIFFLIN
NORTHUMBERLAND
ALLEGHENY
ARMSTRONG
INDIANA
CAMBRIA
HUNTINGDON
LEWISTOWN
DAUPHIN
BUCKS
PERRY
JUNIATA
WESTMORELAND
ALTOONA
READING
PITTSBURGH
LEBANON
MONTGOMERY
BLAIR
HARRISBURG
LEBANON
WASHINGTON
HUNTINGDON
BERKS
JOHNSTOWN
LANCASTER
CUMBERLAND
PHILADELPHIA
PHILADELPHIA
N.J.
UNIONTOWN - CONNELLSVILLE
BEDFORD
LANCASTER
BURLINGTON
CHAMBERSBURG - WAYNESBORO
YORK
DELAWARE
N.J.
WAYNESBURG
CAMDEN
GLOUCESTER
GREENE
FAYETTE
SOMERSET
BEDFORD
FULTON
FRANKLIN
ADAMS
YORK
CHESTER
SCALE
0
10
20
30
40
50

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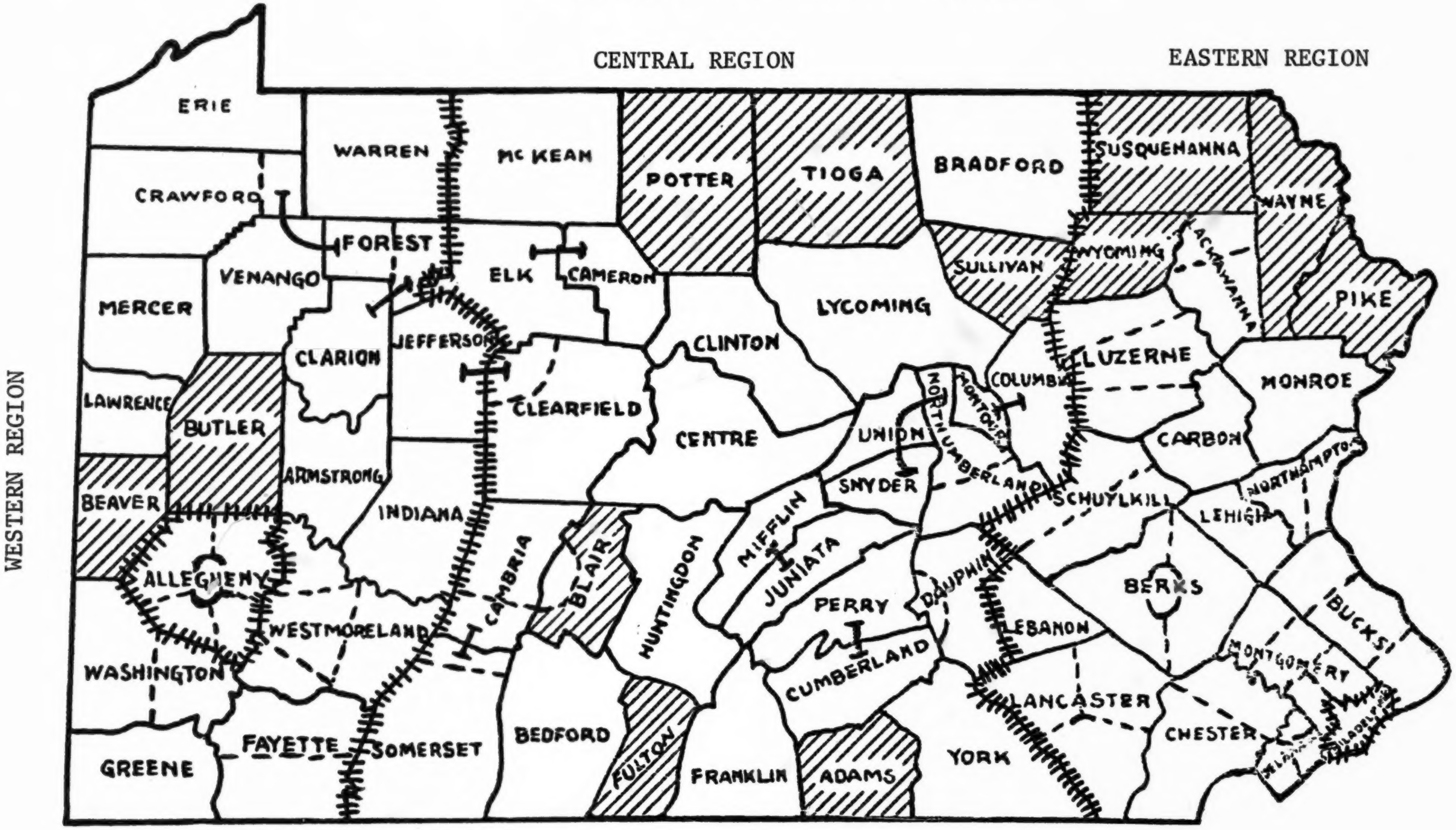
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF LABOR AND INDUSTRY

OA-532—8-63

MAP
APPROVED ATTENDANCE AREAS
FOR
AREA VOCATIONAL-TECHNICAL SCHOOLS

MAP #4


CENTRAL REGION
EASTERN REGION
WESTERN REGION
ERIE
WARREN
McKEAN
POTTER
TIOGA
BRADFORD
SUSQUEHANNA
WAYNE
CRAWFORD
FOREST
ELK
CAMERON
SULLIVAN
WYOMING
LACKAWANNA
PIKE
MERCER
VENANGO
LYCOMING
CLARION
JEFFERSON
CLINTON
LUZERNE
MONROE
COLUMBIA
MONTOUR
NORTHUMBERLAND
LAWRENCE
BUTLER
CLEARFIELD
CENTRE
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ARMSTRONG
SNYDER
SCHUYLKILL
NORTHAMPTON
BEAVER
INDIANA
LEHIGH
MIFFLIN
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BERKS
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WESTMORELAND
LEBANON
BUCKS
WASHINGTON
CUMBERLAND
MONTGOMERY
LANCASTER
FAYETTE
SOMERSET
BEDFORD
CHESTER
YORK
GREENE
FULTON
FRANKLIN
ADAMS

KEY:

☐ Non-shaded areas indicate portions of Commonwealth having approved attendance areas

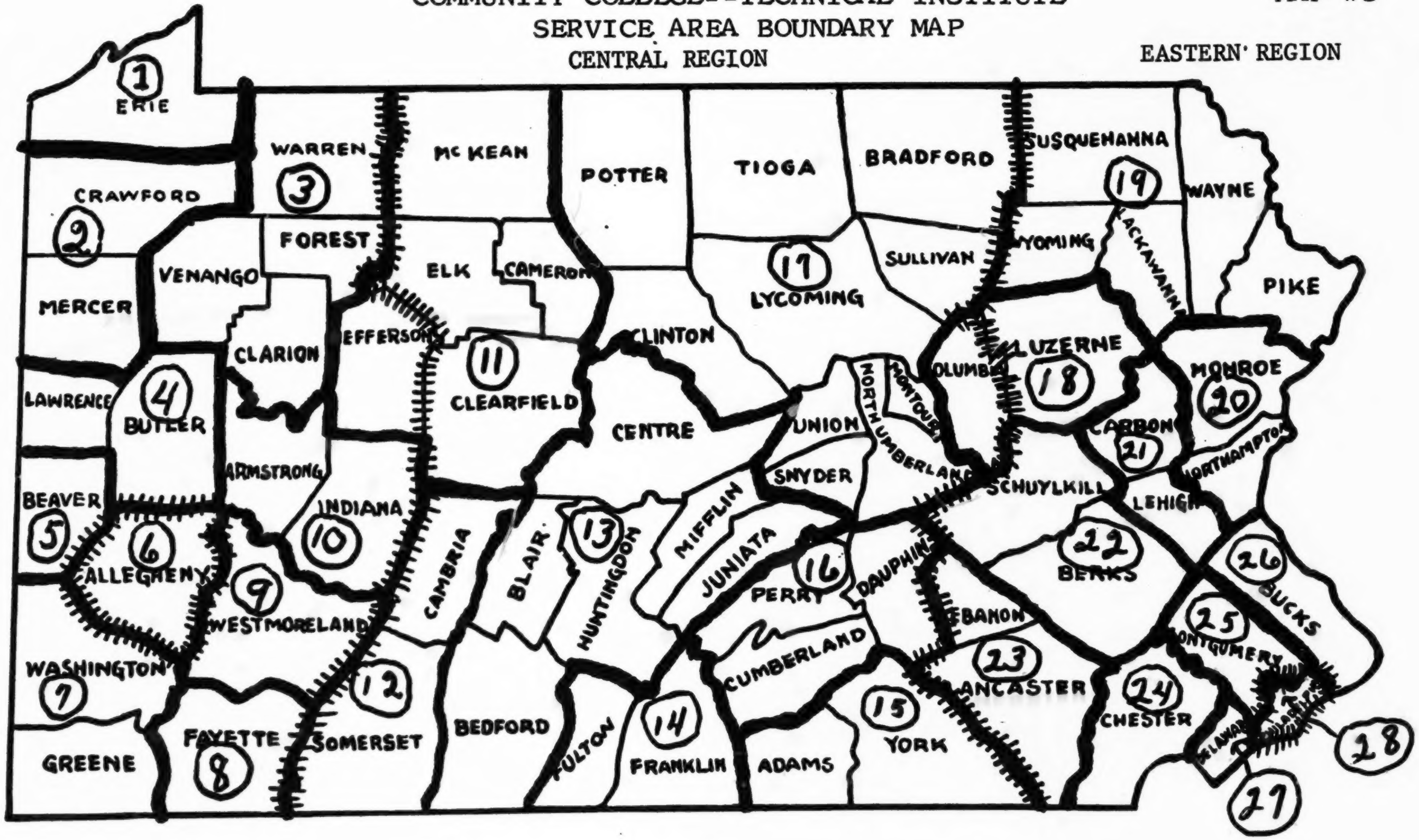
▨ Cross-hatching indicates portions of Commonwealth without approved attendance areas

⊢⊣ Tie indicates a multi-county attendance area

OA-532—9-66

COMMUNITY COLLEGE--TECHNICAL INSTITUTE
SERVICE AREA BOUNDARY MAP

MAP #5


CENTRAL REGION
EASTERN REGION
WESTERN REGION
1 ERIE
2 CRAWFORD
MERCER
LAWRENCE
4 BUTLER
5 BEAVER
6 ALLEGHENY
7 WASHINGTON
GREENE
8 FAYETTE
3 WARREN
FOREST
VENANGO
CLARION
ARMSTRONG
9 WESTMORELAND
10 INDIANA
JEFFERSON
ELK
CAMERON
McKEAN
11 CLEARFIELD
CAMBRIA
12 SOMERSET
BEDFORD
BLAIR
13 HUNTINGDON
FULTON
14 FRANKLIN
POTTER
CLINTON
CENTRE
TIOGA
17 LYCOMING
BRADFORD
SULLIVAN
UNION
SNYDER
MIFFLIN
JUNIATA
16 PERRY
CUMBERLAND
ADAMS
15 YORK
NORTHUMBERLAND
MONTOUR
COLUMBIA
DAUPHIN
LEBANON
23 LANCASTER
SCHUYLKILL
18 LUZERNE
WYOMING
19 SUSQUEHANNA
LACKAWANNA
WAYNE
PIKE
20 MONROE
21 CARBON
NORTHAMPTON
LEHIGH
22 BERKS
24 CHESTER
25 MONTGOMERY
26 BUCKS
27 DELAWARE
28

Key

① Area Number

RECOMMENDATIONS

The State Board for Vocational Education should be designated as Pennsylvania's coordinating agency for the occupational training programs of the various agencies in the State responsible for the supply of trained manpower.

The systems approach to program planning as described in Chapter VI or adaptations of it should be adopted and required in the future as State-local planning procedure to implement programs under the Vocational Education Amendments of 1968, P.L. 90-576. Because of the complexity of the planning system requiring intensive in-service training of State and local personnel, it is suggested that it would take about two years to phase into its full operation.

The State Board for Vocational Education and the Department of Public Instruction should give serious consideration to the organization of the present Bureau of Vocational, Technical and Continuing Education providing for a Deputy Commissioner of Occupational and Continuing Education, a Director of Vocational and Technical Education, and a Director of Continuing Education in accordance with the conclusions previously discussed. Because of the complexity of the changes and personnel problems involved, it is suggested that such a reorganization could be carried out best by phasing into it over the next two years.

Thorough analysis of the educational background and professional experience of present personnel should be carried out immediately with a view toward reassigning staff members to new responsibilities and duties in the proposed organization.

Intensive in-service training programs should be initiated at the earliest possible time to assist staff members in assuming new responsibilities and duties.

Selection of replacement or additional professional personnel to fill current and future vacancies should be made with the new or different responsibilities and duties in mind.

Specialists in the various occupational program areas and continuing education should be included in the staffing pattern of the field offices.

SECTION IV

FINANCE AND REPORTING

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SECTION IV--FINANCE AND REPORTING

CHAPTER VIII--REPORTING PROCEDURES AND FINANCIAL AID POLICIES

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SECTION IV--FINANCE AND REPORTING

CHAPTER VIII

REPORTING PROCEDURES AND FINANCIAL AID POLICIES

Administration of vocational education programs and expenditures at the State level involves the collection of statistical and financial data and disbursement of funds. Incoming data provides management information to the State level administration and serves as a basis upon which some funds are distributed. Because of these functions served by incoming data, it is imperative that it be accurate and manageable. From it should be derivable answers to questions relating to what was done for how many people and at what cost. These questions and many others will need to be answered for purposes of evaluation required annually by a new State Advisory Council on vocational education under P.L. 90-576. There are numerous possibilities for disrupting the system's flow which results in serious disorganization. Although the flow chart is a model of transactions relating to P.L 88-210 programs, a similarly complex procedure exists in programs financed by the Manpower Development and Training Act, the Area Redevelopment Act, and other State financed programs. The Manpower Development and Training programs procedures are somewhat more complex than the above in some transactions, but they nevertheless seem to function more smoothly. Several exceptions are noted in a later part of this report.

Resulting from the design of the system, many time consuming problems involving errors and corrections have emerged. Some of the common troublesome errors which persist in the procedures for approving programs and making payments are listed below. Although ten types of errors are identified, not all of them occur in every one of the programs administered by the Bureau of Vocational, Technical, and Continuing Education.

1. Incorrect address for payees.

2. Incorrect digital numbers for individual referrals which result in erroneous charges to accounts, which in turn require audit to ascertain the errors, when a subsequent claim is submitted and insufficient blances occur. This results in internal adjustments being made.

3. Insufficient back-up for expenditures which is necessary for Federal audit purposes.

4. Incorrect account numbers and counties on reimbursement requests.

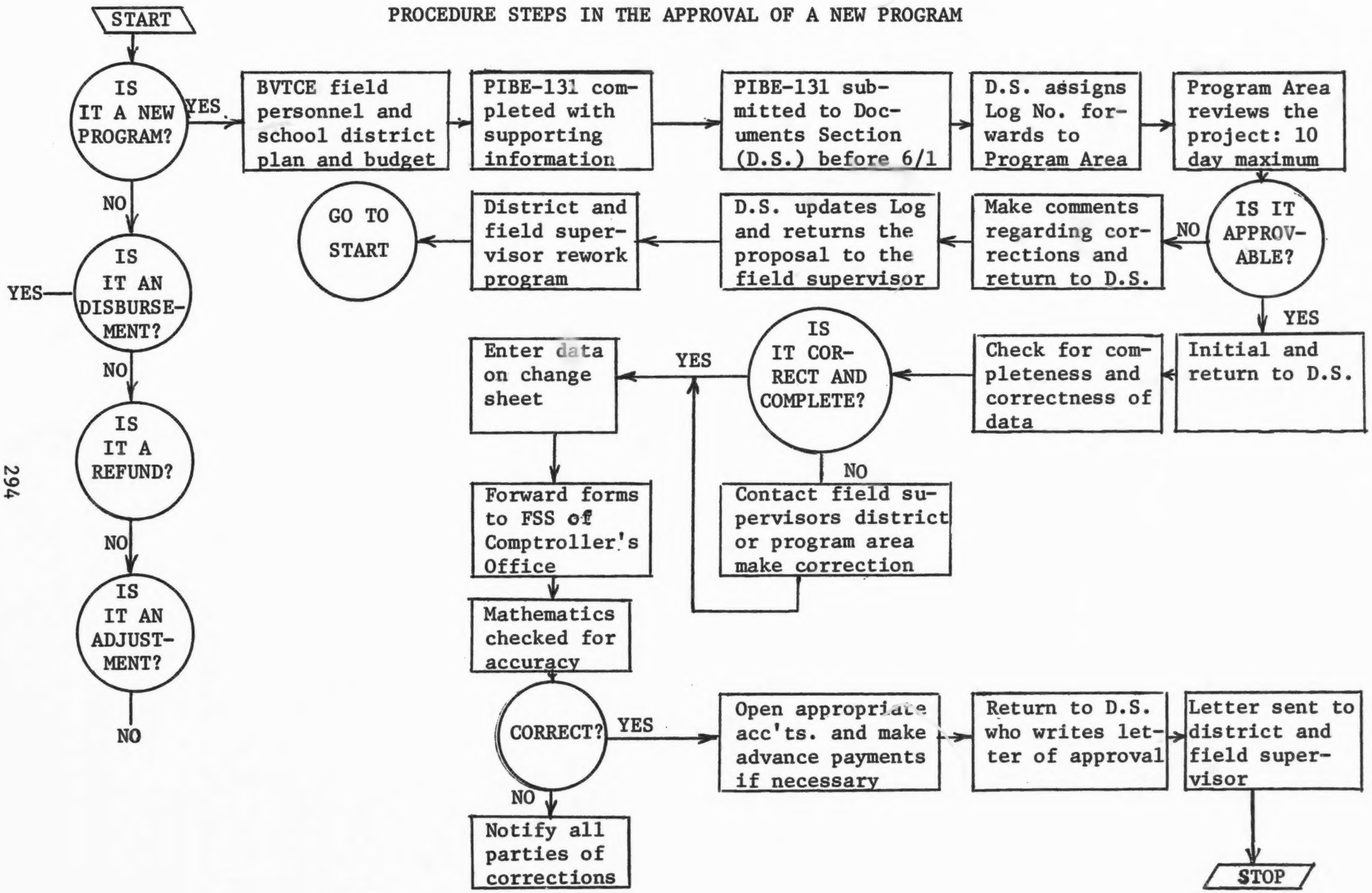
5. Reimbursement requests submitted for more expenditures per category than allotted. This requires a transfer of funds between categories which holds up payment of claims.

6. Recapitulation for final payments not submitted promptly.

7. Purchase order dates and numbers omitted or altered on invoices.

CHART 12

PROCEDURE STEPS IN THE APPROVAL OF A NEW PROGRAM


START
IS IT A NEW PROGRAM?
YES
BVTCE field personnel and school district plan and budget
PIBE-131 completed with supporting information
PIBE-131 submitted to Documents Section (D.S.) before 6/1
D.S. assigns Log No. forwards to Program Area
Program Area reviews the project: 10 day maximum
IS IT APPROVABLE?
NO
Make comments regarding corrections and return to D.S.
D.S. updates Log and returns the proposal to the field supervisor
District and field supervisor rework program
GO TO START
YES
Initial and return to D.S.
Check for completeness and correctness of data
IS IT CORRECT AND COMPLETE?
NO
Contact field supervisors district or program area make correction
YES
Enter data on change sheet
Forward forms to FSS of Comptroller's Office
Mathematics checked for accuracy
CORRECT?
NO
Notify all parties of corrections
YES
Open appropriate acc'ts. and make advance payments if necessary
Return to D.S. who writes letter of approval
Letter sent to district and field supervisor
STOP
NO
IS IT AN DISBURSEMENT?
YES
NO
IS IT A REFUND?
NO
IS IT AN ADJUSTMENT?
NO

8. Purchase orders placed before project was approved.

9. Improper identification of items of equipment purchased on purchase orders.

10. Discounts when shown on invoices not taken into consideration when submitted for payment.

These financial processing problems appear to be of a minor nature, but they have become serious obstructions to effective administrative operation. Unfortunately, they produce great dissatisfaction and poor public relations. In an effort to alleviate some of the problems, it is recommended that:

1. Routine information be standardized avoiding the use of names of individuals as payees.

2. The keypunch operation for financial transactions be contained in and controlled by the staff of the Comptroller. This will eliminate the tremendous error potential inherent in the copying of data while simultaneously reducing the cost of getting transactions into the accounts.

3. Provide ample filing space for the individuals handling the transactions in the Comptroller's area to avoid the possible loss or destruction of vital documents.

4. On a more widespread and deeper scale, it is recommended that a thorough systems analysis be conducted of the necessary procedures and an efficient, data processing system be designed and installed and managed by the Comptroller's staff. This analysis should attempt to standardize system elements wherever possible within the confines of Federal or State directives and laws. It is further suggested that this analysis involve the staff of all bureaus concerned and be backed by top-level management directives.

Elimination of these system disruptors by implementing the recommendations will greatly improve the service provided by the State while simultaneously removing time-consuming nuisances.

Information relating to the on-going programs that is used to make payments and to complete federal reports is collected by the Bureau of Vocational Education on forms known as "affidavits." Preparation, verification, tabulation and other routine processing of these forms are complicated and extended because different versions of the form are used for each service; i.e., business education, distributive education, home economics, etc. The versions are differentiated on the basis of occupational category and design rather than content, which is quite standard. To eliminate this manhour consuming task, it is recommended that:

1. The forms be standardized so that one form can be used for all of the occupational categories.

2. The Bureau of Educational Statistics, Child Accounting, Data Processing, and the Comptroller process the data and provide reports to the Bureau of Vocational Education. These Bureaus are equipped and staffed for performing this function.

3. The information and numerical data be validated for accuracy by data processing equipment. The task is an ideal data processing application.

FINANCIAL AID POLICIES FOR VOCATIONAL EDUCATION

Payments of State funds are made to local vocational education agencies on a legal basis according to the criteria in Sections 2504 and 2504.2 of the School Laws of Pennsylvania. Section 2504 provides for payments to local agencies on the basis of enrollments in vocational curricula. Section 2504.2 provides payments on the basis of enrollments in Area Vocational-Technical Schools.

Payments for vocational education affect the payments made to local agencies under Act 580, the Pennsylvania Subsidy Act. The net result of this interaction has serious implications for the vocational education program in the State. The interaction occurs as a result of the computational method outlined on the PISA-50 form--the form used to calculate the basic school subsidy of each Pennsylvania school district.

By subtracting payments made under Sections 2504 and 2504.2 of the school laws from the gross expenses of the district, the true benefit derived by the district from these vocational education payments is distorted. This distortion works against districts having high aid ratios, that is, those having relatively less financial ability to pay for the education of the students who reside therein. Districts with a low aid ratio, those that are relatively affluent in terms of property available to be taxed for education requirements, benefit greatly from the computation method. The hypothetical data shown in Table 98 clearly illustrates the phenomena described above.

The effect of subtracting amounts received in behalf of vocational education from the gross expenses is to modify the advantage derived from those vocational education payments. The result is that the amounts per pupil are misleading, the less affluent districts gain less than the more affluent districts, and the spirit of Act 580 is violated. To illustrate this five different aid ratios are used in Table 98 example while the other data is held constant.

Line 19 shows the true amount paid for the $35 students and Line 20 shows the true amount paid for the $75 students in order to complete the picture. The other per pupil payments would experience the same effects with magnitude being dependent upon the amounts involved.

TABLE 98

EXAMPLES OF VOCATIONAL EDUCATION PAYMENTS

Line No.	Data Descriptions	DISTRICTS				
		A	B	C	D	E
1.	Gross Expenses	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
2.	No. of $35 Students	200	200	200	200	200
3.	No. of $75 Students	200	200	200	200	200
4.	Amt. Paid for $35 Students	$ 7,000	$ 7,000	$ 7,000	$ 7,000	$ 7,000
5.	Amt. Paid for $75 Students	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
6.	Total Amt. paid for Vo-ed (4+5)	$ 22,000	$ 22,000	$ 22,000	$ 22,000	$ 22,000
7.	=Net Expenses (1-6)	$ 978,000	$ 978,000	$ 978,000	$ 978,000	$ 978,000
8.	Total W.A.D.M.	5,000	5,000	5,000	5,000	5,000
9.	=Actual Instructional Cost (7÷8)	$ 195.60	$ 195.60	$ 195.60	$ 195.60	$ 195.60
10.	District's Aid Ratio	.1000	.3000	.5000	.7000	.9000
11.	Reimbursement per W.A.D.M. (9x10)	$ 19.56	$ 58.68	$ 97.80	$ 136.92	$ 176.04
12.	Total Basic Subsidy Reimbursement (11x8)	$ 97,800	$ 293,400	$ 489,000	$ 684,600	$ 880,200
13.	Total Payments Received (12+6)	$ 119,800	$ 315,400	$ 511,000	$ 706,600	$ 902,200
14.	Gross Expenses (From line 1)	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
15.	Aid Ratio (Line 10)	.1000	.3000	.5000	.7000	.9000
16.	=Total Payment for Basic Subsidy (1x10) (Voc. not deducted)	$ 100,000	$ 300,000	$ 500,000	$ 700,000	$ 900,000
17.	True Gain Because of Vocational Payments (13-16)	$ 19,800	$ 15,400	$ 11,000	$ 6,600	$ 2,200
18.	Line #17 Line # 6	90%	70%	55%	33%	11%
19.	True Amt. paid for $35 Students	$ 31.50145	$ 24.50113	$ 17.50081	$ 10.50048	$ 3.50016
20.	True Amt. Paid for $75 Students	$ 67.50306	$ 52.50239	$ 37.50170	$ 22.50102	$ 7.50034

The undesirable effect occurs only when the expenditures per pupil *does not* exceed $400. This currently includes 51.83% of Pennsylvania's school districts. However, when Act 96, the Act designated to replace Act 580, is implemented, which would probably occur if tax revenues are adequate, the adverse phenomenon would effect all districts *not* having an expenditure per pupil in excess of $550. This would include 73% of the school districts in the State. The phenomenon has also been verified using actual districts as cases. Further descriptions and examples of this phenomenon are available using *actual* data in the *Finance and Reporting Sub-Study Document* or a report derived from it, "Non-equalization Effect of Deducting Vocational Education Subsidies from Total Instructional Costs."[1]

The effect of this mathematical phenomenon is to prevent the intended aid from reaching the less affluent district's vocational education program. This could serve as a detriment to program development in areas that need the economic buildup most.

Remedy of this condition will require legislative action. Act 580 Section 11-1 should be changed by deleting the words [vocational curriculums; area vocational technical schools]. This will provide legislative authority to remove the deduction from **form PISA50**;6/68. The full subsidy paid for vocational pupils would provide encouragement for less affluent districts to start or expand their vocational education programs. Such action would conform to the letter and spirit of the vocational education amendments of 1968 in that local districts would not be denied necessary assistance to establish vocational education programs because of their inability to finance them adequately.

One other financial procedure in particular is of considerable importance to the vocational education program. This is the manner in which payments from areas where matching funds are involved are made. It is suggested Federal funds be used to make payments on claims by local districts until such time as those funds are exhausted. Afterwards, State funds could be used and the matching requirements thereby satisfied. This practice would enable the Commonwealth to make the best use of State funds as they might be required in redirecting some programs. At the same time, this would make immediate use of available Federal funds and avoid the possibility of returning unused funds.

There is little doubt that the present method of aiding local vocational education program by legislating specific payments on enrollments in occupational categories is outmoded and inequitable. In fact, payments through such affidavits can perpetuate or increase the misdirection of the Pennsylvania programs. Legislation should be prepared and proposed which would authorize the appropriation of vocational education funds in such a manner as to give the State Board for Vocational Education maximum flexibility in aiding local vocational education programs. In this way, the State Board could develop financial aid policies each year well in advance of the start of the school year, which would direct the programs toward meeting the priority demands of the labor force as revealed in Chapter V. Of course, requests for appropriations each year should be substantiated and well-justified in terms of identified needs of people and employers and in consideration of the funding required by other State supported occupational training agencies in the State. The systematic planning procedure described in Chapter VI would serve as an excellent basis for justifying future appropriations.

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[1] Cober, John G., "Non-qualization Effects of Deducting Vocational Education Costs from Total Instructional Costs", (paper prepared for Bureau of Research, Department of Public Instruction, Harrisburg, Pennsylvania, 1969.)

CONCLUSIONS AND RECOMMENDATIONS

The treatment of State level program planning under P.L. 90-576 in Chapter VI can hardly be complete without consideration of financial aid policies. In general, the existing financial aid policies and procedures in Pennsylvania have two serious shortcomings (1) they do not permit management of funds in the best interests of meeting critical needs and demands and (2) they are not consistent with the requirements of the Vocational Education Amendments of 1968.

It would be desirable from a management standpoint for the State administration to have the authority to adapt the variables in the funding policies and procedures annually so that the direction and configuration of the State's vocational education program could be influenced as required to accomplish the purposes of the new act. This would enable the administration to establish objectives that reflect the best interest of the people and to encourage activities that increase the possibility of achieving those objectives.

New aid policies will need to be measured now and later in terms of forthcoming requirements of new rules and regulations governing P.L.90-576. For example, Section 123 (a) (6) (E) states, "funds will not be allocated to local educational agencies in a manner, such as the matching of local expenditures at a percentage ratio uniform throughout the State, which fails to take in consideration" the results of evaluations, the relative vocational education needs of all population groups in all parts of the State, especially the socio-economic disadvantaged, the relative ability of the local educational agency to provide the resources and the excess of the cost of vocational education programs, services and activities.

There are several considerations that might be considered as fundamental and vital to all financial aid policies and procedures:

1. The Federal and State funds should be used to the maximum as incentives to local educational agencies to help expand and improve the program in the direction of the purposes of the Federal and State Acts. These purposes are presumed to reflect, in general, nationally and in all States, the demands and needs of people as well as those of employers.

2. Financial Aid policies should be thoroughly reviewed with the consultation and advice of involved persons and agencies and revised annually, if necessary, to accomplish the purposes and objectives of the programs.

3. The policies should be decided upon by the State Board for Vocational Education as early as possible in the Spring of each year well in advance of a new fiscal and school year.

4. After formal State Board approval is recorded in the minutes of an official meeting, the policies should be reproduced and distributed to all concerned school administrators well in advance so that they can take them into consideration in preparing their program plans and budgets.

5. The aid policies should be based on fair and equitable distribution of funds not necessarily uniformly, but taking into account the ability of local educational agencies to finance a program and other considerations specified in P.L. 90-576.

The following are some suggested approaches which tie together planning steps and financial aid policies and procedures:

1. Continue to determine the annual labor market needs of Pennsylvania and local areas for each succeeding period.

2. Ascertain the total supply of occupationally trained graduates likely to be produced annually for each five-year period.

3. Evaluate the compatibility of graduate supply and labor market demand.

4. Note the occupational fields where additional growth should be encouraged and those where program outputs might be somewhat curtailed.

5. Establish a priority listing of critical needs of the State and each local area.

6. Devise a formula that will consider the various needs established in No. 5 in an effort to allocate available funds.

7. Assist the local districts in developing and submitting a proposal that will bring the existing program configuration into line with the priorities established in No. 5 above.

8. Review the proposal and if it complies with the priorities, approve it and encumber the funds allotted by the formula.

9. On a specified date, reallocate by formula the unencumbered funds, repeat steps 7 and 8, and, if the funds still have not been exhausted, apply the remainder to special projects consistent with

the priorities. They could also be used to further assist less wealthy districts in achieving their goals.

10. The next year or whenever events dictate, a review of the priorities should be accomplished and changes made as necessary. Smooth transitions would be considered.

11. The formula variables would be adjusted accordingly and the cycle restarted.

The fundamental basis of all of these processes is organized systematic State-wide planning, taking into account many local considerations. Much more aggressive State leadership along with considerable interaction with local educational agencies and institutions will be required. In turn, this kind of State-local interaction will necessarily involve close working relationships with other appropriate State and local agencies and employers in every community.

Only in this way, is it likely that Pennsylvania will provide training opportunities readily accessible to all persons of all ages in all communities of the State.

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ANCILLARY SERVICES

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SECTION V--ANCILLARY SERVICES

CHAPTER IX--GENERAL

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SECTION V--ANCILLARY SERVICES

CHAPTER IX

GENERAL

The Vocational Education Act of 1963 (P.L. 88-210) provided the means for the development of ancillary services in vocational education. According to Public Law 88-210, ancillary services in vocational education include:

> Teacher training and supervision, program evaluation, special demonstration and experimental programs, development of instructional materials, and State administration and leadership, including periodic evaluation of State and local vocational programs and services in light of information regarding current and project manpower needs and job opportunities.[1]

Public Law 88-210 mandated that at least three percent of all funds expended in vocational education should be used for ancillary services and activities to assure quality in vocational education programs. The Bureau of Vocational, Technical and Continuing Education of the Commonwealth accepted the challenge and intent of the act to extend and develop high quality ancillary services.

More than six percent, twice the minimum amount required of the total vocational education budget was expended annually on ancillary services since the passage of the 1963 act. Table 99 shows the expenditures for ancillary programs in relation to the total expenditures for vocational education. In 1965, a low of 2.4 percent of the total budget for vocational education was expended for ancillary services. However, in 1966, 10.4 percent of the total budget was expended for that purpose.

RESEARCH AND RESEARCH RELATED ACTIVITIES

The major portion of the ancillary services budget was expended for research and research related activities. A total of 116 projects were approved, funded and conducted during the past four years. These projects were conducted by local school districts, county offices, colleges, and universities.

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[1] Public Law 88-210, Vocational Education, 88th Congress, H.R. 4955, December 18, 1963, p. 69.

TABLE 99

EXPENDITURES FOR ANCILLARY SERVICES AND VOCATIONAL EDUCATION IN PENNSYLVANIA FROM 1965 THROUGH 1968*

Year	Funding Source	EXPENDITURES		
		Vocational Education	Ancillary Services	Percent Expended for Ancillary Services
1965	Federal	$ 8,866,678	$ 292,052	-
	State	8,547,683	385,862	-
	Local	14,372,701	88,215	-
	TOTAL	$ 31,787,062	$ 766,219	2.4%
1966	Federal	$ 12,568,131	1,765,097	-
	State	7,119,942	906,343	-
	Local	20,640,941	1,540,843	-
	TOTAL	$ 40,329,014	$ 4,212,283	10.4%
1967	Federal	$ 13,804,197	2,052,467	-
	State	29,771,960	804,490	-
	Local	30,247,210	2,547,710	-
	TOTAL	$ 73,823,367	$ 5,404,667	7.3%
1968	Federal	$ 14,492,236	$ 2,676,455	-
	State	31,567,863	1,408,350	-
	Local	48,768,015	1,891,569	-
	TOTAL	$ 94,828,114	$ 5,976,374	6.3%
	GRAND TOTAL	$240,767,557	$16,359,453	6.5%

*Data does not include expenditures for Vocational Teacher Education.

There were four general types of research and related projects funded with ancillary monies. The first was experimental research, which employed a rigid design and made use of inferential statistics. The second was the developmental project, divided into two subcategories. The initial subcategory was curriculum development, which made use of descriptive statistics and observations including evaluation. The second subcategory was the development of innovative instructional methods. The third general type of project was the pilot study and the fourth was the workshop or teacher training activity. The percentile breakdown of projects as to type is shown in Table 100 .

TABLE 100

TYPE OF RESEARCH PROJECTS FUNDED, 1965-1969

	Percent	Number of Projects
Experimental	3%	4
Developmental (Descriptive Evaluative)	18%	21
Developmental (Instructional Methods)	47%	54
Pilot	11%	13
Workshops	21%	24
TOTALS	100%	116

Ancillary projects were also classified under the several occupational education services. Projects which spanned all seven of the services were classified under the "All Fields" heading. The percent breakdown of projects in the occupational education vocational services is shown in Table 101.

TABLE 101

RESEARCH PROJECTS BY VOCATIONAL SERVICE, 1965-1969

	Percent
Agriculture	12%
Business	18%
Distributive Education	9%
Guidance	7%
Health	5%
Home Economics	16%
Trade and Industry	14%
All Fields	19%

Almost one-half of the projects were conducted in the development of instructional methods. Workshops, pilot programs, and curriculum development projects were fairly evenly distributed. The experimental projects comprised only three percent of all projects. Table 101 indicates that 19 percent of the projects spanned all occupational fields. Business, home economics, trade and industry, and agriculture, in that order, were evenly distributed. Distributive education, guidance and health projects were all less than ten percent of the total.

EVALUATION

Since the passage of the Vocational Education Act of 1963, evaluation in vocational education received considerable attention as an ancillary service. Provisions for evaluation were emphasized in several paragraphs of The Pennsylvania State Plan for Vocational Education. Among the more significant factors were the following:

> The State staff will make periodic evaluation of vocational education programs and services to provide information enabling the State Board to make allocation of funds on an equitable basis evaluations will consider:
>
> (a) Needs of all persons of all age groups in all communities,
> (b) Manpower needs and job opportunities,
> (c) Accessibility of vocational education to all persons,
> (d) Quality of programs,
> (e) Suitability of vocational education to the needs, abilities, and interests of students.

To carry out the intent of the act and the State plan for evaluation, the Department of Public Instruction budgeted funds to develop evaluative criteria for vocational-technical education programs in the State. Some of the outcomes of the evaluative process were to:

1. Stimulate interest and activity in local communities in the evaluation process.

2. Establish and maintain an atmosphere conducive to the improvement of instruction throughout the vocational-technical schools and programs of the Commonwealth.

3. Provide a means for promoting improvement in the operation of vocational-technical education programs.

4. Place emphasis on functions and effectiveness, and the outcomes resulting from the program.

5. Help school districts to self-evaluate their programs and to plan accordingly for the future.

The evaluation program should become an integral part of the planning and the learning processes. Evaluation should be concerned with the continuing development of more effective procedures and techniques of measuring outcomes which would then contribute to desirable program changes and improvements.

CURRICULUM DEVELOPMENT

A Curriculum Development Center in Vocational Education was established in 1966 at The Pennsylvania State University with ancillary funds. The overall purpose of the center was to develop curriculum and instructional materials for use by teachers and administrators in all of the occupational education services. Some of the specific activities designed to fulfill the objectives were:

1. Development of a systematic operational methodology for curriculum activities.

2. Formulation of basic formats for curriculum and course guides.

3. Determining the types of information needs of teachers.

4. Determining efficient ways of fulfilling these needs.

Although the center was in operation for a period of two years, a lack of coordination and communication with Department of Public Instruction personnel seemed to have limited its effectiveness in fulfilling program goals. However, an abundance of curriculum and instructional materials were collected and were available upon request by vocational teachers and administrators.

This study did not undertake to examine and evaluate the curriculum in vocational and technical education in Pennsylvania. There is doubt that there is a critical need to do this at the earliest possible time. Inasmuch as the Vocational Education Amendments of 1968, P.L. 90-576, earmarks funds for curriculum development activities, the Department of Public Instruction should take full advantage of this opportunity to provide for realistic curriculum evaluation and development.

OTHER ANCILLARY SERVICES

The preceding part of this chapter was designed to present a broad picture of certain ancillary services and activities in vocational and technical education that were operational in Pennsylvania. A detailed description and analysis of vocational guidance and counseling, teacher education services, and certification requirements, other very important ancillary services, are presented in Chapters X and XI.

THE FUTURE OF ANCILLARY SERVICES

The Vocational Education Amendments of 1968 (P.L. 90-576) lend additional support to the development of ancillary services and activities to assure quality in all vocational education programs in Pennsylvania. Emphasis in P.L. 90-576 is placed upon "teacher training and supervision, program evaluation, special demonstrations and experimental programs, development of instructional materials, improved State administration and leadership including periodic evaluation of vocational education programs and services in light of information regarding current and projected manpower needs and job opportunities."[2]

When programs become operational under P.L. 90-576 in accordance with the provisions of the new State Plan, both the quantity and quality of ancillary services in vocational and technical education in the future should show a vast improvement.

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[2] Public Law 90-576, Vocational Education Amendments of 1968, 90th Congress, H.R. 18366, October 16, 1968, p. 9.

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SECTION V--ANCILLARY SERVICES

CHAPTER X

VOCATIONAL TEACHER EDUCATION AND CERTIFICATION IN PENNSYLVANIA

INTRODUCTION

The success of vocational and technical education in any state is largely dependent upon the adequacy and quality of teacher education programs and adequately prepared teachers. Over the years, the U.S. Congress has recognized this and has enacted several vocational education acts to make Federal funds available to the States to assist them in the promotion and operation of vocational and technical education programs. The Smith Hughes, George-Barden, the Vocational Education Act of 1963 and more recently the Vocational Education Amendments of 1968, P.L. 90-576, have been the principal pieces of legislation providing funds for the development of effective vocational education programs including teacher education. The legislation and the funds in behalf of vocational and technical education have set a high priority upon the qualifications of vocational teachers. The rationale of the legislation placed great emphasis upon competent teachers as an effective means of equipping students with the occupational skills and technical knowledge along with the civic and social competencies necessary to enter and advance in the occupational fields for which they are trained.

The Smith Hughes Act of 1917 and the governing rules and regulations mandated that the States establish programs of vocational teacher education as a condition of acceptance of the benefits of the Act. This mandate was based on the fact that teacher education programs common in the Normal Schools in 1917 were thought to be inadequate as a base for professional preparation of vocational education teachers. In addition, the Normal Schools of the period had shown little interest in the special problems of vocational teacher education to prepare the beginning vocational teacher. A Federal program of teacher education was not prescribed by the act, but rather that the States should establish and conduct one to meet vocational education purposes and objectives.

The following are the current basic guidelines prescribed to the States by the Federal government for the establishment of teacher education programs:

> "The State Plan shall provide for teacher-training programs (both pre-employment and in-service) to the extent to provide qualified Vocational Education personnel. The State Plan shall describe the State Board's plans for the development of teacher-training programs with information on the types to be included, and the standards and requirements designed to develop and maintain programs of such

> character and efficiency as are needed to provide an adequate supply of qualified teachers and other vocational personnel."[1]

It should be especially noted here that the State Board for Vocational Education has the responsibility for establishing and supervising the administration of the vocational teacher education programs. The State Board can arrange to delegate the program of teacher education to other agencies or institutions but it cannot waive or delegate the responsibility for overall supervision and effectiveness of the program.

With these guidelines serving as a point of departure, the Commonwealth of Pennsylvania has set forth its own plan for an effective program of vocational teacher education. The following general statement of policy for vocational teacher education has been established in the Commonwealth:

> Vocational Education under the State Plan will include the Teacher Education program(s) (both pre-employment and in-service) which are adequate to provide for a sufficient supply of qualified teachers, supervisors, and other Vocational Education personnel.[2]

The Pennsylvania State Plan for Vocational Education gives a specific breakdown of the broad statement of policy, which is applicable to all individual agencies and institutions concerned with teacher-training.

Listed below are some specific statements which are even more descriptive of the Pennsylvania State Plan for teacher education programs:

> Teacher education programs will be provided for persons preparing or presently teaching in vocational and technical education fields such as Agriculture, Business and Office, Distribution, Health, Home Economics, Trade and Industrial, and Technical Education. . . .
>
> Provision will be made for pre-service and in-service education in the professional and subject matter areas to improve the work of prospective and present Vocational and Technical teachers. . . .

---

[1] Vocational Education Bulletin No. 1, Administration of Vocational Education, U.S. Department of Health, Education and Welfare, Office of Education, 1966, p. 20.

[2] Commonwealth of Pennsylvania, Pennsylvania State Plan for Vocational Education, Department of Public Instruction, Harrisburg, April, 1966, pp. 24-25.

> Pre-service and in-service teacher education programs will include courses on the undergraduate and graduate level. . . .
>
> Teacher Education programs will insure an adequate supply of qualified teachers. . . .
>
> Teacher Education will be provided by the State Board or through agreements with agencies or institutes.[3]

The State Plan for Vocational Teacher Education was designed to produce special programs of teacher preparation in each of the seven occupational categories. There are, of course, many similarities in teacher education programs, but the greatest differences are to be found in the programs for trade and industrial teachers, where major emphasis has been placed upon actual successful work experience as a prerequisite for certification to teach. The idea of "excellence in teaching" is a major goal of all teacher education programs.

PURPOSE

The purpose of this study was to examine the recent history and status, as well as, some of the characteristics of and changes in Vocational Teacher Education Programs in Pennsylvania. A review and analysis of enrollment trends and expenditure patterns from 1963-1968 was made to report some of the expenditures for training and certifying teachers for initial entry into the various vocational fields. Stress was also placed upon characteristics of present programs along with projections of the number of certificated personnel prepared by vocational teacher education institutions through 1975 in each occupational category. An effort was also made to determine the impact and effects of the Vocational Education Act of 1963 on vocational teacher education programs throughout the State.

INSTITUTIONS OFFERING VOCATIONAL TEACHER EDUCATION PROGRAMS

There are five State-owned and three State-related institutions in Pennsylvania that have approved programs and received Federal and State vocational education funds to train vocational education teachers. In addition, there are 20 private colleges and universities that have been approved by the State agency to train vocational teachers, which do not receive similar financial aid.Table 102 gives a listing of all vocational teacher education programs by occupational categories operating in State-owned, State-related and private colleges and universities.

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[3] Ibid., pp. 26-27

TABLE 102

PENNSYLVANIA INSTITUTIONS OF HIGHER EDUCATION OFFERING VOCATIONAL TEACHER EDUCATION PROGRAMS BY OCCUPATIONAL CATEGORY

VOCATIONAL TEACHER EDUCATION INSTITUTIONS	OCCUPATIONAL CATEGORIES				
	Agri-cultural Education	Business Education	Distri-butive Education	Home Economics Education	Trade & Industrial Education
1. Carnegie Institute of Technology		X		X	
2. College Misericordia		X		X	
3. Drexel Institute of Technology		X		X	
4. Duquesne University		X			
5. Elizabethtown College		X			
6. Geneva College		X			
7. Grove City College		X			
8. Immaculata College				X	
9. Juniata College				X	
10. Marywood College		X		X	
11. Mercyhurst College		X		X	
12. Messiah College***				X	
13. The Pennsylvania State University**	X	X		X	X
14. St. Vincent College		X			
15. Seton Hill College				X	
16. Bloomsburg State College*		X			
17. Cheyney State College*				X	
18. Mansfield State College*				X	
19. Millersville State College					
20. Shippensburg State College*		X			
21. Indiana State University		X	X	X	
22. Temple University**		X	X		X
23. University of Pittsburgh**		X	X		X
24. Villa Maria College				X	
25. Westminster College		X			
26. Wilkes College		X			
27. Albright College		X		X	
28. Thiel University		X			
TOTAL	1	20	3	15	3

* State-owned Institutions
** State-related Institutions
*** Undergoing Program Approval

Technical education and health occupations education are included in the broad category of trade and industrial education. There is no baccalaureate degree program as such in health occupations education operating in the State. Degree programs in technical education are granted as trade and industrial education degrees. Baccalaureate and graduate degree programs to prepare teachers for certification are offered in all other occupational categories.

Business education at Franklin and Marshall, Villa Maria and Waynesburg College is gradually being phased out. After the 1968-1969 school year, the home economics teacher education program at Juniata College will be discontinued.

WRITTEN AGREEMENTS

Written agreements between the State Board and the institutions arranging for vocational teacher education are required under regulations governing P.L. 88-210 and P.L. 90-576. Individual written agreements were drawn between the State agency and the three State-related institutions. It does not appear that the agreements between the State agency and The Pennsylvania State University ever became official in that they were never signed and sealed by the two agencies. The agreements between The University of Pittsburgh and Temple University were quite detailed and their programs have been operated in accordance with the agreements.

The written agreements specified how each institution shall prepare individuals for certification and the conditions under which undergraduate and graduate programs will function for the preparation of vocational teachers, supervisors and administrative personnel.

EXPENDITURES AND PERSONNEL CERTIFICATED IN VOCATIONAL TEACHER EDUCATION FROM 1963 THROUGH 1968

Since the passage of the Vocational Education Act of 1963, there has been a significant increase in Federal and State expenditures for vocational teacher education programs.

The additional funds have enabled vocational teacher education institutions to develop higher quality programs by placing greater emphasis upon well-qualified staffs, better facilities and equipment, increased research activities, expanded graduate programs, more curriculum innovations and more in-service education. The number of students enrolled and graduates certificated within the various institutions have shown modest gains.

Table 103 shows nearly a 300 percent increase in expenditures for Vocational Teacher Education in Pennsylvania, from $396,135 in 1963 to $1,422,256 in 1968. The number of students graduating during the same period reveals a 24 percent increase from 658 to 837 students. These data do not include personnel certificated in trade and industrial education from the three teacher education institutions.

During the five year period, a total of $3,849,120 of State and Federal funds were expended in vocational teacher education and 3,598 students received certification for initial entry into teaching. Trade and industrial teacher education institutions received the largest portion of vocational funds ($1,738,601) during the same period. Agriculture teacher education received the smallest allocation.

The disparity between the percentage increase in expenditures and the number of graduates certificated in vocational teacher education from 1963-64 through 1967-68 can be explained, in part, by the significant increase in research activities, curriculum development, instructional salaries, graduate programs, and other such activities in the various institutions.

The brief overview of vocational teacher education which follows is designed to present some of the unique characteristics and recent innovations in each occupational category: (1) agricultural teacher education, (2) business teacher education, (3) distributive teacher education, (4) home economics teacher education, and (5) trade and industrial teacher education. The observations and data will serve as a basis for some recommendations for program improvement.

TABLE 103

ALL GRADUATES CERTIFICATED AND FEDERAL AND STATE EXPENDITURES*FOR STATE-AIDED AND STATE SUPPORTED VOCATIONAL TEACHER EDUCATION INSTITUTIONS BY OCCUPATIONAL CATEGORY FROM 1964-1968

OCCUPATIONAL CATEGORY	1963-1964		1964-1965		1965-1966		1966-1967		1967-1968		TOTALS	
	Expend.	Grad. Certif.	Expend.	Grad. Certif.	Expend.	Grad. Certif.	Expend.	Grad. Certif.	Expend.	Grad. Certif.	Expend.	Grad. Certif.
Agriculture	$ 54,938	27	$ 56,275	23	$ 73,275	19	$103,911	20	$108,980	23	$397,379	112
Business Education	**	375	**	367	**	363	124,136	393	285,447	416	409,583	1,914
Distributive Education	72,881	45	70,586	38	80,831	69	115,212	70	171,689	74	511,199	296
Home Economics	92,644	221	122,647	258	136,817	244	169,225	256	212,374	333	733,107	1,312
Trades and Industries	175,672	***	229,619	***	309,239	***	438,956	***	585,115	***	1,738,601	***
TOTALS	$396,135	668	$479,127	686	$600,162	695	$951,440	739	$1,363,605	846	$3,790,469	$3,634

* The expenditure figures also include the funding of expanded graduate programs, increased research activities, more curriculum innovation and developmental projects and a variety of in-service programs.

** Did not receive federal funds until 1966-67.

*** Information not available on number of personnel certificated.

AGRICULTURAL EDUCATION

The Pennsylvania State University is the only institution within the State that prepares teachers in agricultural education. Graduates of this curriculum are qualified for positions in various other fields connected with agriculture such as agricultural extension service, farm cooperatives, agriculture business and industry, government services, farming and commercial organizations.

Students enrolled in agricultural education are required to take courses in a variety of technical agricultural fields including agricultural engineering. Majors are also required to complete professional courses in education, psychology and the social sciences which are necessary for State teacher certification.

Table 104 indicates the number of students enrolled in agricultural education and the projected number that could be certified through 1975. Enrollments increased with each successive year of the program. For example, there were nine students enrolled in 1968-69 as freshmen and 22 students enrolled as seniors during the same year. The increasing number of students in each year of college preparation appears to be a continuing pattern that has developed because the agricultural education department often enrolls students from other departments within the College of Agriculture. Students with majors in animal science, agronomy, horticulture, forestry, etc., often change their majors to agricultural education during the sophomore, junior or senior years. Some students with majors in agriculture (other than education) enroll in the agricultural education department to obtain teacher certification after having received a degree in a non-teaching field. Authorities within the agricultural education department feel that this trend will continue as the new area vocational-technical schools generate a demand for teaching specialists in newer agriculture education fields such as horticulture, turf grass management, and other off-farm agriculture occupations. An upward trend in this direction is anticipated until 1971-72 when "leveling off" is expected. The University also expects an increase in graduate enrollments and research activities during the coming years.

Table 105 shows that by 1975, 74 students are expected to be enrolled for certification in agricultural education with an estimated 36 actually receiving certification. Approximately, one-half (48.6) of the undergraduate and graduate students enrolled for certification are expected to complete those requirements each year.

TABLE 104

PROJECTED NUMBER AND CLASSIFICATION OF STUDENTS ENROLLED FOR CERTIFICATION IN VOCATIONAL AGRICULTURAL EDUCATION FROM 1968 - 1975

CLASSIFICATION	YEARS						
	*1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
Freshmen	9	10	10	10	10	10	10
Sophomores	10	12	12	12	12	12	12
Juniors	15	16	16	16	16	16	16
Seniors	22	24	24	24	24	24	24
Grad. Students	3	6	9	12	12	12	12
TOTALS	59	68	71	74	74	74	74

*Actually Enrolled

TABLE 105

PROJECTED ENROLLMENTS AND PERSONNEL EXPECTED TO RECEIVE CERTIFICATION IN AGRICULTURAL EDUCATION IN PENNSYLVANIA THROUGH 1975

Years	Projected Student Enrollments		Projected Students Receiving Certification	
	Number	Percent Increase	Number	Percent Increase
1968-69	59	---	25	5.00
1969-70	68	13.24	30	16.67
1970-71	71	5.23	33	9.09
1971-72	74	4.07	36	8.34
1972-73	74	0.00	36	0.00
1973-74	74	0.00	36	0.00
1974-75	74	0.00	36	0.00
TOTAL	494	----	232	----

Table 106 reveals that approximately 57 to 70 percent of all graduates certificated in agricultural education were placed in teaching fields in Pennsylvania during the past five years. Department personnel estimated that the percentage of certificated graduates leaving the State for teaching positions was very low although no actual records were kept.

There was a significant increase in the number of students receiving graduate degrees. In 1963-64, only four students received the master's degree. By 1967-68, this figure had increased to 17. The number of students receiving the doctorate degree had increased from three to six during the same time period. These statistics alone are indicative of the increased emphasis on graduate degree programs and activities within the department.

The teacher education professional staff in agriculture education increased from seven to eight during the five years under investigation, commensurate with the growth of students enrolled for certification. The number of graduate assistants increased from 10 to 16 during the five year period. This increase reflects expanded graduate activities.

Intensive efforts have not been made to recruit students into agricultural education programs. Recruitment efforts usually take the form of teacher education staff members participation in college or high school career day programs, agriculture teachers across the State talking about the teacher education program to prospective students and Future Farmers of America (FFA) activities at Penn State during FFA week.

Since the passage of the Vocational Education Act of 1963, certain revisions have been made in the agricultural education curriculum at Penn State. Changes have been designed to equip both undergraduate and graduate students with the needed competencies for teaching careers at all levels and for entry into agriculture, business and related research fields. Recent innovations in agriculture teacher education include:

1. Increased research activities into the problem areas of agriculture and related fields by a more research oriented staff.

2. A significant increase in in-service courses for regular vocational agricultural teachers as well as teachers of specialized areas (at least 28 in-service courses scheduled per year with an enrollment of approximately 380 teachers).

3. More emphasis placed upon advanced degrees with accompanying graduate research assistantships.

TABLE 106

CERTIFICATED GRADUATES, GRADUATES STUDENTS RECEIVING ADVANCED DEGREES AND TEACHER EDUCATION STAFF IN AGRICULTURAL EDUCATION FROM 1963-1968

Status of Certificated Graduates	1963-64	1964-65	1965-66	1966-67	1967-68
All Graduates Certificated	27	23	19	20	23
Graduates Placed in Teaching Fields in Pennsylvania	17 (58%)	14 (61%)	12 (63%)	14 (70%)	15 (65%)
Students Receiving Advanced Degrees in Agricultural Education					
Masters	4	9	7	16	17
Doctor of Education	2	4	4	4	5
Doctor of Philosophy	1	0	0	0	1
TOTAL	7	13	11	20	23
Teacher Education Staff					
Professional Staff Full Time	7	7	8	8	7
Professional Staff Part Time	0	0	1	1	1
Sub-Total	7	7	9	9	8
Graduate Assistants	10	10	11	14	16
Clerical Staff Full Time	4	5	6	6	6

4. Workshops and conferences for employed and beginning teachers of agriculture to improve their competence in working with new and changing technical aspects of the program.

5. Changes within course content to prepare prospective teachers to plan curricula and prepare instructional programs and materials.

6. A decreased emphasis on production agriculture and an increased emphasis on employment needs in agriculture technology.

7. Potential agriculture teachers are encouraged to arrange a two summer work-experience program in the area of specialty before graduation especially for those who have not had practical experience in off-farm agriculture occupations.

CONCLUSIONS AND RECOMMENDATIONS

The nature and record of performance of the agriculture education department including the listed innovations suggest that the program of agriculture teacher education at the Pennsylvania State University is basically sound. The recommendations listed below are intended to help to continue to improve the effectiveness and the quality of agriculture education at the University.

1. The teacher education staff in agricultural education needs to emphasize more the development of general vocational education competencies and understanding of the total program of vocational and technical education in addition to the development of agricultural education competencies and the philosophy and rationale of agricultural education.

2. Agricultural teacher education programs should be more closely aligned with other vocational and technical education areas so that competencie common to all vocational education could be better coordinated and presented to prospective teachers.

3. Since agricultural education programs are emphasizing off-farm agriculture areas such as agricultural supplies, agriculture mechanics, agricultural products, ornamental horticulture, agricultural resources and forestry in addition to production agriculture, more emphasis should be placed on the revision of methods courses, student teaching experiences and other professional courses to meet the needs of students in these specialized areas.

4. The present and anticipated enrollments in production agricultural education enterprises appear to be commensurate with the anticipated need in the immediate years ahead. Efforts should be made to recruit more students to meet the demand in the newer off-farm technical agriculture fields.

5. Since most of the presently employed agricultural teachers are products of the production agriculture curriculum with a supervised farming orientation, there is a pressing need for more intensive in-service education programs designed to equip these teachers with the knowledge and processes of off-farm technical agriculture occupations.

HOME ECONOMICS EDUCATION

Current programs in vocational home economics education in the Commonwealth represent a cooperative effort among subject matter instructors, professional education staff members, and home economics teacher educators who serve to plan and coordinate teacher preparation activities.

Present teacher preparation programs include laboratory experiences and practicums, theory in child development, family economics, housing, and clothing and textiles. Also included are professional education courses in curriculum development, methods of teaching home economics, student teaching in vocationally approved home economics departments, and professional education in areas such as educational psychology and the foundation of education. A strength in the program has come from the prospective teachers' understanding of human development which is included in subject matter courses in child development.

Home economic programs are operational in all sections of the Commonwealth, and are available to most individuals who wish to pursue higher education programs in that field. Table 107 shows that home economics teacher education programs are currently operating in four State-aided and ten private institutions in Pennsylvania. A total of $733,707 of State and Federal funds was expended to certify 887 graduates at State-aided institutions, 1964 through 1968. Although private institutions received no Federal or State vocational education funds, they were responsible for training 436 graduates for a grand total of 1,323 graduates certificated during the five year period.

Among the State-aided institutions, The Pennsylvania State University received the largest amount of funds for vocational teacher education, while Cheyney State College received the smallest sum. Cheyney State College received no Federal and State vocational education funds for program operation until 1966-67 when only $9,426.00 was provided.

From 1963-64 to 1967-68, the number of vocational home economics graduates at State-aided institutions expanded from 142 to 223, a 36 percent increase. The number of graduates at private institutions during the same time increased from 89 to 110, a 19 percent increase. Penn State did not show an upward trend in graduates certificated, apparently because the

TABLE 107

GRADUATES CERTIFICATED AND STATE-FEDERAL EXPENDITURES FOR HOME ECONOMICS EDUCATION BY STATE SUPPORTED AND PRIVATE INSTITUTIONS FROM 1963-1968

HOME ECONOMICS EDUCATION	1963-1964		1964-1965		1965-1966		1966-1967		1967-1968		TOTAL	
	Expend.	Grad. Certif.	Expend.	Grad. Certif.	Expend.	Grad. Certif.	Expend.	Grad. Certif.	Expend.	Grad. Certif.	Expend.	Grad. Certif.
State-Aided Institutions												
Cheyney		6		7		9	$ 9,426	10	$ 22,665	11	$ 32,091	43
Mansfield	$ 20,149	33	$ 23,958	48	$ 36,715	43	42,346	54	58,651	75	181,819	253
Indiana	32,375	60	38,560	65	37,268	73	48,253	74	53,773	95	210,229	367
Penn State	40,120	43	60,129	54	62,834	44	69,200	41	77,285	42	309,568	224
Sub-Total	$ 92,644	142	$122,647	174	$136,817	169	$169,225	179	$212,374	223	$733,707	887
Private Institutions												
Albright College		13		12		4		14		14		57
Carnegie-Mellon		12		12		9		12		17		62
College Misericordia		18		13		9		9		18		67
Drexel		-		-		-		-		-		-
College of Immaculata		4		7		10		4		14		39
Marywood		22		23		24		22		25		116
Mercyhurst		5		5		7		1		6		24
Messiah		-		-		-		-		-		-
Seton Hill		9		8		8		9		8		42
Villa Maria		6		5		4		6		8		29
Sub-Total		89		85		75		77		110		436
GRAND TOTAL	$ 92,644	231	$122,647	259	$136,817	244	$169,225	256	$212,374	333	$733,707	1,323

the University had a fixed limited quota of undergraduates accepted in the program. The growth of programs and services at Penn State was most evident in the expansion of graduate programs, research activities, in-service courses and work shops, and other innovative activities. Graduates certified from Juniata College were not included in this report becuase the home economics education program there is gradually being phased out, (effective September, 1969). Private institutions were responsible for certifying approximately one third of all home economics education graduates from 1963-64 through 1967-68.

The purpose of Table 108 is to project the number of graduates expected to receive certification in home economics education through 1975. Based on a 10 mean percent increase in enrollments during the last five years, about 4,000 graduates are expected to be certificated in home economics education through 1975.

TABLE 108

PROJECTED NUMBER OF GRADUATES RECEIVING CERTIFICATION IN HOME ECONOMICS EDUCATION FROM TEACHER EDUCATION INSTITUTIONS IN PENNSYLVANIA THROUGH 1975

Years	Projected Number Certified*	Mean Percent Increase
1968-69	363	10%
1969-70	397	10%
1970-71	421	10%
1971-72	463	10%
1972-73	509	10%
1973-74	559	10%
1974-75	613	10%
1975-76	675	10%
TOTAL	4,000	

*Projection based on a 10 percent average annual increase in enrollment from 1963-67.

Table 109 shows what happened to home economics education graduates after they were certified to teach, and the size of staffs employed to prepare graduates in the various institutions.

About half (51 percent) of the graduates prepared in home economics education entered the teaching field in Pennsylvania during the last five years. An average of nearly 25 percent of graduates entered the teaching field in other states. The percentage of graduates going to other states is even higher among the private institutions. A large portion of the remaining 25 percent of graduates most of whom are females, get married and become housewives. A small number of graduates enter home economics extension service, government related employment and other such occupations.

The professional staffs in home economics education both full-time and part-time increased from 44 to 55 during the past five years. Greater increases are reflected in part-time staffs. Most of the increases in professional staffs occurred in State-aided institutions. Private institutions showed only modest gains.

Most of the clerical staff in home economics education were part-time employees. Only two or three departments employed full-time clerical help. At Indiana State University, home economics teacher educators were in critical need of clerical help because only part-time student help was available on a limited basis. In some private institutions the situation was even more crucial.

Changes in Home Economics Teacher Education Programs Since the Passage of The Vocational Education Act of 1963

The passage of The Vocational Education Act of 1963 precipitated several changes in home economics teacher education programs. The major change since 1963 reported by 12 of the 14 institutions was preparing home economics teachers to teach courses having an objective of gainful employment. As a result, the philosophy of home economics teacher education programs change to a "wage earning" focus in addition to the historical home making objective.

TABLE 109

HOME ECONOMICS TEACHER EDUCATION STAFF AND STATUS OF CERTIFICATED GRADUATES LEAVING PENNSYLVANIA HOME ECONOMICS TEACHER EDUCATION INSTITUTIONS DURING (THE PAST FIVE YEARS) 1964 TO 1968

Status of Certificated Graduates	1963-64	1964-65	1965-66	1966-67	1967-68
Graduates Certificated	231	259	244	256	333
Number & Percentage of Graduates Placed In Pennsylvania	133 (58%)	125 (48%)	120 (49%)	127 (50%)	168 (50%)
Number & Percentage of Graduates Placed In Other States	54 (23%)	66 (25%)	64 (26%)	60 (23%	77 (23%)
Teacher Education Staff					
Professional Staff Full Time	35	35	35	37	40
Professional Staff Part Time	9	9	12	16	15
Sub-Total	44	44	47	53	55
Clerical Staff Full Time	4	5	6	5	5
Clerical Staff Part Time	10	10	15	19	20
Sub-Total	14	15	21	24	25

There are commonalities in preparing teachers for the two types of programs. Both programs include the study of procedures and emerging practices in occupations such as child care and institutional food service. The procedures for planning learning experiences and curriculums under realistic conditions of the home are similar to procedures for planning learning experiences to be carried out under realistic conditions of an employment situation.

Another major change in most home economics teacher preparation programs has been to prepare potential teachers to accept and to work with people from diverse social, racial ethnic and economic groups (preparing teachers to teach the disadvantaged). This activity is being accomplished by providing potential teachers with a variety of experiences with the disadvantaged.

Typical experiences reported by the various institutions include:

(1) Practicums with families of different life styles in multi-cultural multi-class situations,
(2) Cooperating and working closely with anti-poverty groups and agencies,
(3) Students teaching in disadvantaged communities,
(4) Observing in urban ghetto areas,
(5) Methods courses in problems of the disadvantaged,
(6) Conferences and institutes geared toward the problems of the disadvantaged.

Two private institutions reported a new course added to the curriculum on "the family in urban settings", wherein the unique problems of the disadvantaged of all types are stressed.

Other changes in the philosophy of home economics education programs reported by the various institutions include:

(1) Moving from a focus on skill development to the psycho-sociological aspects of the family, home and community,
(2) More community involvement in teacher preparation programs,
(3) Emphasis upon research (especially, in the larger State-aided institutions),
(4) Increased attention to consumer education and the dual role of the home maker and wage earner.

All of these are attuned to emphasis in the Vocational Education Amendments of 1968.

The changes made in course content, teaching methods and home economics education departments are reported in Table below. The table indicates that most of the changes reported in these categories occurred in private institutions. However, most of the State-aided institutions were already engaged in the types of programs the private institutions reported. The changes in private institutions "share and tell" periodic conferences involving all home economics teacher educators and State department personnel. For the most part, the changes were consistent with the changes in philosophy of programs.

Observations were obtained from private and State-aided institutions relative to the problems involved in adding or dropping home economics education course to the curriculum. Only three private and one State-aided institution experienced difficulty in dropping and adding courses. In those cases, about six to eighteen months were needed to introduce a new course. In those institutions where no undue problems were reported, the procedure required only sufficient justification to the appropriate college authorities and a new course could be introduced in a reasonable amount of time. One State-aided institution reported that "if the course to be added is offered in other State-aided institutions, there are no problems, otherwise, problems are encountered."

Future trends within home economic teacher education departments as projected by the various institutions will center around the recent changes and innovations made since 1963. Home economics teacher educators reported that the major areas of instruction to receive increased emphasis in the future will be:

(1) Wage earning,
(2) Consumer education,
(3) Problems of the disadvantaged,
(4) Research activities,
(5) Graduate programs and activities,
(6) The psycho-sociological aspects of the family, home and community.

Curriculum offerings will become more diversified as potential teachers are prepared to teach both the occupational and family living aspects of home economics.

TABLE 110

CHANGES AND REVISIONS MADE IN HOME ECONOMICS EDUCATION COURSES, TEACHING METHODS AND DEPARTMENTAL ORGANIZATION BY PRIVATE AND STATE-AIDED INSTITUTIONS SINCE THE PASSAGE OF THE VOCATIONAL EDUCATION ACT OF 1963

Changes and Revisions Made	Reported By State-Aided Institutions	Private Institutions
Changes and Revisions in Courses		
Introducing clothing design courses	0	3
Replacing meal preparation courses with creative food courses	0	3
Added a course in human development	0	2
Experimentation and Research in management practice course	0	1
Wider selection of courses	2	1
In-service courses for teachers emphasizing wage earning focus	1	0
Potential teachers required to take urban sociology rather than rural sociology	1	1
Courses added in consumer education	1	0
No change, plans being made for change	1	1
Changes and Revisions in Teaching Methods		
Greater use of audiovisual technology	4	3
Added course in household equipment		1
Moving to dialogue methods	1	0
Use of multi-sensory techniques		1
More on-site observations and studies emphasized	1	1
Made provisions for independent study		1
Changes in Departmental Organization		
Reorganized Department to Department of Human Development	1	1
Graduate program initiated		1
Expanded staff for more diversity in course offerings	1	1
Secured staff for child and family areas		1
No changes		

RECOMMENDATIONS

1. There should be greater flexibility in program offerings which would make it even more possible for prospective teachers to elect advanced courses in one area of specialization. Such flexibility would allow a prospective teacher to get background needed for teaching vocational homemaking and at the same time enough courses in an area such as institutional management so that the prospective teacher would have the basic in-depth preparation for teaching food services (wage earning).

2. Staffs should be reorganized and developed to provide prospective teachers with more experiences in working with youth and adults, getting acquainted with all kinds of families, and in working in hospitals, businesses, welfare agencies, and other similar occupations. The work being done to extend teaching and work experience through simulated means needs to be improved and put into wider use.

3. There should be developed an organized program for the preparation of teachers and supporting para-professional personnel to work at different levels and kinds of teaching responsibility (differentiated staffing roles). This would include the preparation of teacher aides, technical assistants, teachers, department heads etc.

4. Research programs in home economics education need to include more carefully planned and evaluated innovative activities in ways of providing teachers with needed occupational experiences. This type of research would provide a stronger rationale for determining the amount and kinds of practice teaching, occupational and other experiences needed to prepare an excellent teacher.

5. Since some educators question the assumption generally accepted by home economics educators that teacher education for homemaking and wage earning occupations using knowledge and skills of home economics can be one coordinated teacher education program, objective evidence should be obtained about the extent to which one program can or cannot serve both aspects of home economics teacher education.

6. There needs to be more stress placed on the recruitment and selection of prospective home economics teachers for different types of roles.

7. More emphasis should be placed upon in-service and pre-service workshops which deal with the unique problems of home economics, such as:

    (1) Preparing teachers for the disadvantaged,
    (2) Wage earning roles,
    (3) Differentiated staffing,
    (4) Needed research,
    (5) Interdepartmental relationships,
    (6) Consumer education.

BUSINESS EDUCATION

A review of current programs in business teacher education institutions within the Commonwealth suggests that three areas of preparation are emphasized for prospective business education teachers. These include:

(1) General education (English education, humanities, sciences, etc.),
(2) Specialized education (accounting, marketing, data processing, secretarial studies,etc.),
(3) Professional education (educational psychology, sociology, philosophy,etc.).

The various institutions engaged in the preparation of teachers expect the prospective teacher to demonstrate professional and occupational competence through course work and in some cases, related work experience. The number of course credits required in anyone of the above areas will vary according to the requirements by the departments within institutions. However, State certification requirements impose broad limitation on the extent to which a department may deviate in course requirements for the preparation of business education teachers.

The brief review of programs within State approved business teacher education institutions which follows will highlight some of the unique characteristics of the various departments and provide a rationale upon which to base recommendations for program improvement.

Business teacher education provides the largest certificated graduate output within vocational education in the Commonwealth. Table 111 shows that 1,914 graduates received certification from 1963-68. Of the certificated graduates, 1,507 were trained by State-aided institutions and 407 by private institutions. Private institutions are training approximately 27 percent of all business eduation graduates in the State. Before State-aided institutions began to receive funds for teacher education, there was a trend toward a slight decline in graduates certficated. However, after funds were received in 1966-67, there was an immediate increase in graduates certificated.

TABLE 111

GRADUATES CERTIFICATED AND STATE-FEDERAL EXPENDITURES FOR BUSINESS EDUCATION BY STATE SUPPORTED AND PRIVATE INSTITUTIONS FROM 1963-1968

BUSINESS EDUCATION INSTITUTIONS	1963-1964		1964-1965		1965-1966		1966-1967		1967-1968		TOTAL	
	Expend.	Grad. Certif.	Expend.	Grad. Certif.	Expend.	Grad. Certif.	Expend.	Grad. Certif.	Expend.	Grad. Certif.	Expend.	Grad. Certif.
State-Aided Institutions												
Bloomsburg State		95		89		83	$ 34,810	100	$ 64,700	109	$ 99,510	476
Indiana State		70		68		57	28,609	79	48,448	68	77,057	342
Penn State		28		30		32	7,658	28	28,465	29	36,123	147
Shippensburg		65		61		78	11,581	64	34,700	85	46,281	353
Temple University		19		22		24	27,585	21	72,039	26	99,624	112
University of Pittsburgh		10		15		12	13,893	22	37,095	18	50,988	77
Sub-Total		287		285		286	$124,136	314	$285,447	335	$409,583	1507
Private Institutions												
Carnegie Mellon		12		2		2		2		6		24
College of Misericordia		11		12		9		14		14		60
Drexel		9		4		9		6		13		41
Duquesne University		15		17		18		20		16		86
Elizabethtown College		6		10		10		14		13		53
Grove City College		14		18		9		10		4		55
Marywood College		10		9		12		5		7		43
West Minster		5		7		5		4		4		25
Thiel		6		3		3		4		4		20
Sub-Total		88		82		77		79		81		407
GRAND TOTAL		375		367		363	$124,136	393	$285,447	416	$409,583	1914

Bloomsburg State College produced more certificated graduates from 1963 through 1968 than any other State-aided institution. Shippensburg State and Indiana University were second and third respectively.

The leader of certificated graduates among the private institutions was Duquesne University with 86 graduates from 1963 through 1968. Thiel College certified the least number of graduates (20). Within private institutions, there was an overall trend toward a decrease in students certificated in business education. Franklin and Marshall, indicated that business education programs at Villa Maria and Waynesburg College have already been phased out.

Business teacher educators within private institutions emphasized that more of their students sought majors in business administration and business management than in business education. This trend, coupled with the fact that there is a high cost involved to acquire the facilities and equipment necessary to prepare teachers in business education, has caused private institutions to place less emphasis on teaching careers in business. Since private institutions receive no State or Federal support for business teacher education, it is virtually impossible to expand programs.

Table 112 below reveals how the percentage of graduates trained by private institutions in business education was gradually decreasing while graduates trained in State-aided institutions were increasing. In 1963-64, the graduates certified in business education from private institutions accounted for 30.66 percent of all graduates. On the other hand, in 1963-64 the percentage of graduates certified in State-aided institutions increased from 69.44 percent of 73.01 percent in 1967-68.

According to Table 113 based on a 5.54 mean percent increase in graduates certificated from 1963-64 through 1967-68, a total of 3,634 graduates will be certificated in business education in Pennsylvania by 1975 from private and State-aided institutions. However this projection could be altered either up or down if private institutions continue to decline in the number of graduates certificated, or if present State-aided institutions experience a major "boom" in enrollments before 1975. Since these are offsetting variables when operating together, these projections should be nearby correct when based upon previous output graduates.

TABLE 112

PERCENTAGE OF CERTIFICATED GRADUATES TRAINED IN BUSINESS EDUCATION BY PRIVATE AND STATE-AIDED INSTITUTIONS FROM 1963 THROUGH 1968

YEARS	INSTITUTIONS			
	State-aided		Private	
	Number	Percent	Number	Percent
1963-64	287	69%	88	31%
1964-65	285	64%	82	35%
1965-66	286	72%	77	29%
1966-67	314	75%	79	24%
1967-68	335	76%	80	24%
TOTAL	1,507	73%	407	27%

TABLE 113

PROJECTED NUMBER OF GRADUATES RECEIVING CERTIFICATION IN BUSINESS EDUCATION FROM TEACHER EDUCATION INSTITUTIONS IN PENNSYLVANIA THROUGH 1975

Years	Projected Number	Mean Percent Increase*
1968-69	439	5%
1969-70	463	5%
1970-71	489	5%
1971-72	516	5%
1972-73	545	5%
1973-74	575	5%
1974-75	607	5%
TOTAL	3,634	

*Based upon 5 mean percent increase in certificated graduates from 1963 - 1967

Table 114 is designed to show what happens to the certificated graduates leaving Pennsylvania's business teacher education institutions. Approximately 58 to 60 percent of all graduates certificated remain in Pennsylvania to teach, while 14 to 21 percent of the graduates are placed in teaching fields in other states. The remaining 20 percent of graduates either entered industry, the U.S. Armed Services, related occupations or got married and became housewives.

There was a higher percentage of graduates leaving the Commonwealth among the private institutions than the State-aided institutions. However, certificated students leaving Temple University probably had a greater tendency to leave the State for employment than at other State-aided institutions. This trend was evidenced because Temple is located in an area that serves a large number of graduates from the neighboring States of New Jersey and Delaware. In fact, several students actually commute from nearby communities within these two states. Temple University is located in a heavily populated urban setting which attracts many out-of-state students.

Just as the number of certificated graduates increased, so did the number of full-time and part-time professional staff to train these graduates. In 1963-64, there were 73 part-time and full-time professionals. By 1967-68, the number had increased to 99, a 26 percent increase. The students certificated during the same period increased by 15.76 percent, from 375 to 416. The rate of growth of staff was significantly higher than certificated graduates during the past five years.

Efforts to recruit high school seniors into business teacher education programs usually take the form of college night visitations by admission office personnel in various high schools. Very few teacher education personnel did individual recruiting of students. One State-owned institution sponsored a limited program in typewriting and business education for exceptional high school students which influenced several students to enter the program. Other institutions circulated brochures to guidance departments on a limited basis announcing certain programs in business teacher education. State scholarship offerings also attracted students into business teacher education departments.

TABLE 114

BUSINESS TEACHER EDUCATION STAFF, AND CERTIFICATED GRADUATES IN BUSINESS TEACHER EDUCATION INSTITUTIONS DURING THE PAST FIVE YEARS

Status of Certificated Graduates	1963-64	1964-65	1965-66	1966-67	1967-68
All Graduates Certificated	375	367	363	393	416
Percentage of Graduates Placed in Teaching Fields In Pennsylvania	219 (58%)	212 (58%)	215 (59%)	239 (61%)	251 (60%)
Percentage of Graduates Placed in Teaching Fields In Other States	105 (28%)	65 (17%)	69 (19%)	56 (14%)	88 (21%)
Teacher Education Staff					
Professional Staff Full Time	60	59	61	73	75
Professional Staff Part Time	13	13	17	19	24
TOTAL	73	72	78	92	99
Clerical Staff Full Time	8	8	9	9	12
Clerical Staff Part Time	7	7	7	8	9
TOTAL	15	15	16	17	21

Changes in Business Teacher Education Programs Since The Passage of The Vocational Education Act of 1963

Business teacher education, like most other fields of teacher education, is operating within an environment of intensified change. Federal legislation, especially The Vocational Education Act of 1963, has provided the stimulus for unparalleled opportunities for improvement within business teacher education programs, especially among State-aided institutions. Traditionally, the philosophy of undergraduate business teacher education institutions emphasized the following:

1. General education, including those skills and knowledges needed by all citizens to understand our economic system and their role in that system

2. Personal skills, including those skills and knowledges needed for more effective written communication

3. Vocational skills, emphasizing typewriting, bookkeeping, and shorthand

Since funds were made available through The Vocational Education Act of 1963, programs have undergone considerable change and the traditional philosophy is being modified considerably.

One major change has been a trend toward a reduction of course credit for the so-called skill subjects. For example, typical arrangements involve a combination of courses in methods of teaching shorthand and methods of teaching typing into methods of secretarial subjects.

The introduction of courses in data processing and computer programming seems to have had the greatest influence on business teacher education curriculums. In some colleges, courses in data processing is required for all business education majors; in other institutions, data processing is required of all accounting teacher trainees. At least two State-aided colleges offered data processing for in-service teachers.

Major stress has been placed upon broadening program philosophy through in-service and pre-service courses which enable teachers to increase their knowledge of current subject matter, teaching and learning theories, and teaching methods including the development of instructional materials.

Business teacher educators are well attuned to the specific needs of prospective teachers and teachers in the field especially as related to the flow of work in the modern business office. This awareness has prompted State-aided teacher education institutions to sponsor summer workshops using modern techniques and technology.

Business teacher education institutions, for the most part made some provisions in their programs for preparing teachers to teach the disadvantaged. This has usually taken the form of preparing teachers to enter inner-city schools for student teaching and exposing potential teachers to the special problems of the disadvantaged through special methods courses, workshops, community involvement and case studies of the particular problems of this segment of the population. Temple University reported more emphasis on orienting teachers toward the unique problems of disadvantaged groups.

Four private institutions reported that no changes had been made in methods courses. Most other institutions indicated that major changes in methods courses have involved and increased emphasis on the use of instructional media such as films, overhead projectors and tape recorders to play back actual lessons. Temple University has started to use micro-teaching techniques and video-tape recorders with student teachers. Teacher educators at Temple felt that this method should prove to be a most helpful innovation in the preparation of business education teachers. Table 115 presents a listing of the changes made by private and State-aided institutions in certain areas of the business teacher education program since 1963. In addition to the changes reported in Table 115 , teacher educators in the larger State-aided institutions reported an increase in research activities coupled with a focus on graduate degree programs.

The Pennsylvania State University reported major problems in introducing new courses and innovations into the business education curriculum. The entire process takes from six months to a year and a half involving a number of complications. Other institutions reported that the process involved a minimum amount of difficulty and time.

TABLE 115

Changes and Revisions Made in Certain Areas of Business Teacher Education Programs by Private and State-Aided Institutions Since the Passage of The Vocational Education Act of 1963

Program Areas	Reported By	
Changes and Revisions Made	Stated-aided Institutions	Private Institutions
Program Content		
Data processing courses introduced	3	1
Computer Programming courses introduced	3	1
Course in business report writing added	1	0
Dropped accounting course	0	1
Shortened and reorganized skill courses	3	1
Broadened course offerings	2	2
Closer coordination of courses	1	1
Emphasizing more curriculum development and office practice courses	1	1
More workshops and conferences during the summer	1	1
Operation research course added	0	1
More emphasis on guidance	0	3
No change in courses, but changes in course content	0	3
Teaching Methods		
More emphasis on instructional media including films, tape recorders etc.	4	3
Using micro-teaching techniques and video-tape recorders with student teachers	1	
No change	0	4
Staffing		
Interdepartmental cooperation from other schools	0	1
Added a certified public accountant to staff	0	1
Added business administration under the department of business education	0	1
Preparing Teachers to Teach the Disadvantaged		
Must take social foundations courses and sociology	0	1
Expanded realization of individual variances	0	1

TABLE 115(Continued)

Changes and Revisions Made	Reported By State-aided Institutions	 Private Institutions
Preparing Teachers to Teach the Disadvantaged		
Potential Teachers having experience with disadvantaged groups through special projects	3	1
More interaction with hard core unemployed	0	1
College location limits the amount of interaction with the disadvantaged	0	2
Potential teachers doing their student teaching in disadvantaged communities	2	1
No major changes	3	3

The new and emerging future patterns and trends in business teacher education institutions reported by the various teacher educators include:

1. Increased emphasis on modern technology including data processing computers, and systems management

2. More cooperation and experiences with business and industry

3. More interdepartmental cooperation within the various institutions

4. An increased research-consciousness on the part of colleges and universities, especially curriculum research and development

5. Greater emphasis on the preparation of teachers (both pre-service and in-service) to teach in inner-city schools and with other disadvantaged groups

6. More stress on improvement of the teaching process involving all teachers, through the use of modern technology including video-taping, micro-teaching and interaction analysis

7. A greater focus on the preparation of teachers for special classes in vocational training of dropouts, and adults, including on-the-job improvements

8. The training of coordinators of cooperative work experience programs through workshops, conferences and special classes.

RECOMMENDATIONS

1. The teacher education institutions should promote and assist in establishing business education departmental "block scheduling" of office occupations students at both secondary and postsecondary levels. Block scheduling would provide flexibility within the department in order to attain maximum potential performance by each student.

2. All office jobs do not have the same high standards of achievement in typing and shorthand skills ordinarily set up in business education programs. Therefore, the teacher education institutions should prepare pre-service and in-service teachers to organize and offer instruction to meet the needs of slower learners or students having educational deficiencies and at the same time meet certain employers' job requirements.

3. There should be a greater emphasis placed on conducting summer institutes conferences and meetings devoted to cooperative work-study programs, and the use of modern teaching techniques including micro-teaching, video-taping of lessons, and curriculum research and development. These programs should be designed for pre-service and in-service personnel, as well as area coordinators.

4. More work experiences should be provided for potential teachers relative to the unique requirements of business, industry and governmental agencies. This would allow teachers to acquire a first hand knowledge of the unique settings of employers for whom secondary school business and office education graduates would eventually work.

5. In those institutions where departments of business education are organized under departments of business management and business administration, efforts should be made to establish a separate department of business education with its own department head.

DISTRIBUTIVE EDUCATION

Programs in distributive teacher education institutions are designed to prepare teachers to teach marketing and distribution of goods and services to students in comprehensive high schools, area vocational and technical schools, community colleges and adult education centers. Three institutions are currently approved to prepare teachers in distributive education; Temple University, Indiana University and the University of Pittsburgh. Indiana University is in its first year of operation with an enrollment of 14 students. A total of $15,572 Federal and State funds was budgeted during the 1968-69 school year for program operations. Since this program is new, only projections of future expected enrollments at Indiana can be cited in this report.

Table 116 gives a breakout of expenditures and certificated graduates leaving Temple University and the University of Pittsburgh during the past five years. Temple University received $288,942 and certified 214 graduates from 1963-64 through 1967-68. The University of Pittsburgh was granted $222,257 and certified 82 graduates during the same time period. During the entire period, there was a significant increase in the number of certificated personnel leaving both institutions. Covering the five year period, a total of $511,199 was appropriated and 296 graduates were certified.

Table 117 gives the projections of graduates at Temple, Pittsburgh, and Indiana Universities based upon expected certificated graduate output. The authorities at Temple University indicated that a 20 percent increase in graduates is expected each year from now through 1975. A total of 852 graduates are expected to be certificated at Temple. During the same time period, the teacher educators at Pitt expects a 15 percent increase in graduates per year through 1975. Using this base for projections, 281 graduates should be certified at Pitt.

The 1969-70 school year will mark the first graduating class in distributive education at Indiana when seven persons are expected to receive certification. Indiana also reported the number of individuals expected to receive certification year by year.

TABLE 116

GRADUATES CERTIFICATED AND STATE-FEDERAL EXPENDITURES FOR DISTRIBUTIVE TEACHER EDUCATION INSTITUTIONS FROM 1963-64 - 1967-68

Years	Temple University		University of Pittsburgh	
	Expenditures	Graduates Certificated	Expenditures	Graduates Certificated
1963-64	$ 39,083	30	$ 33,798	15
1964-65	33,737	20	36,849	18
1965-66	36,367	55	44,464	14
1966-67	67,976	55	57,236	15
1967-68	111,779	54	59,910	20
TOTALS	$288,942	214	$222,257	82

GRAND TOTALS

Expenditures - $511,199
Certificated Graduates - 292

TABLE 117

NUMBER OF GRADUATES TO RECEIVE CERTIFICATION FROM DISTRIBUTIVE TEACHER EDUCATION INSTITUTIONS IN PENNSYLVANIA PROJECTED THROUGH 1975

YEARS	TEMPLE		PITT		INDIANA	
	Grad. Certif.	Percent Increase	Grad. Certif.	Percent Increase	Grad. Certif.	Percent Increase
1968-69	66	20%	25	15%	0	-
1969-70	79	20%	29	15%	7	-
1970-71	95	20%	34	15%	10	30%
1971-72	114	20%	39	15%	15	33%
1972-73	137	20%	45	15%	20	25%
1973-74	164	20%	52	15%	25	20%
1974-75	197	20%	60	15%	125	-
TOTALS	852	-	281	-	102	-

GRAND TOTAL - 1,235 graduates certificated in Distributive Education through 1975

A very low percentage of graduates in distributive education actually entered that teaching field from 1963-64 - 1967-68. The percentage extended from a low of 15 percent in 1964-65 to a high of 28 percent in 1966-67. Less than 25 percent of certificated graduates in distributive education actually enter the teaching field in Pennsylvania. Approximately 20 percent of the graduates entered the teaching field in other States. Out-of-State placement is especially noticeable at Temple University where they certify many graduates from the States of New Jersey and Delaware. One of the attractions is higher salaries in some locations in Delaware and New Jersey. Another 15 percent of the graduates are placed in other teaching fields, mainly, business education. A high percentage of certificated personnel find more attractive positions in business and industry than in education.

The increase in professional and clerical staffs during the same time period is commensurate with the growth pattern of graduates certificated.

TABLE 118

STATUS OF CERTIFICATED PERSONNEL LEAVING DISTRIBUTIVE TEACHER EDUCATION INSTITUTIONS FROM 1963-64 THROUGH 1967-68

Status of Certificated Graduates	1963-64	1964-65	1965-66	1966-67	1967-68
Number of Graduates Certificated	45	38	69	70	85
Percentage of Graduates Placed In Teaching Fields In Pennsylvania	7 (15%)	6 (15%)	17 (23%)	20 (28%)	21 (24%)
Percentage of Graduates Placed In Teaching Fields In Other States*	**	**	**	14 (20%)	17 (20%)
Percentage of Graduates Placed In Other Teaching Fields*	**	**	(21%)	15 (21%)	15 (18%)

* Estimates by institutions
** Statistics unavailable

Temple University employs an extensive program of recruitment in distributive education. Faculty members reported such recruitment activities as seminars for high school seniors, scholarship offerings, news stories, billboard posters, adult distributive education classes, youth activity functions, and business functions. However, undergraduates enrolled in distributive education at Temple pursue a major in business education with a distributive education focus. It is not until the graduate level that a student actually receives a major in distributive education. The same situation holds true at the University of Pittsburgh.

The Vocational Education Act of 1963 reaffirmed distributive teacher education as a vital important service. Before that time, programs in teacher preparation institutions were quite fragmented and lacked adequate financial support. Since 1963, program changes and innovations have been numerous.

Since 1963, the curricula in distributive teacher education institutions have grown and expanded markedly. Course offerings in distributive education departments or vocational departments now prepare teachers and coordinators in methods of teaching, philosophy of vocational (or distributive) education, materials and techniques and coordinating practices under a variety of titles and combinations. Since the distributive education program at each institutions is under a department of vocational education, the organization structure facilitates maximum flexibility in course offerings.

Other recent changes in distributive education programs have involved a complete reorganization and synthesis of course offerings. For example, at Temple University, the number of course offerings have been reduced from 58 to 17. Authorities within programs indicated that the course revisions were necessary for quality and effectiveness. Listed below are some specific innovations during recent years:

1. There has been a substantial increase in research activities involving certain unique problems in distributive education, especially at Temple University. Necessary funds have been provided to hire competent staff members in distributive education research.

2. The staffs at the University of Pittsburgh and Temple University have grown from one individual, who was expected to perform all the duties necessary in the professional phase of teacher education, to a team of well qualified experts needed to handle the various phases of the program.

3. Temple University strives to orient potential teachers and coordinators in all classes to the unique problems of the disadvantaged. This may take the form of case studies, conferences with individuals from ghetto sections of Philadelphia and on-site visitations to homes.

4. Teaching methods have changed from the basic lecture to projects, demonstrations, and the use of audio-visual aides.

RECOMMENDATIONS

1. The teacher education program at the University of Pittsburgh should strive to expand its operations to provide for more emphasis on needed research, increased enrollments and enlargement of staff.

2. Distributive teacher education institutions should design programs for more potential teacher involvement in classroom observations and practicums with cooperating businesses.

3. In-service meetings for teacher coordinators, teacher educators and state department personnel should be held to foster to create a closer coordination of objectives, philosophy and programs.

4. There should be more stress given to awarding bachelor degrees in distributive education to supply the urgent demand for personnel in area vocational-technical schools, comprehensive high schools, and community colleges.

5. Greater attempts should be undertaken by the teacher education institutions and the State agency to establish evaluative criteria for distributive teacher education programs.

TRADE AND INDUSTRIAL EDUCATION

The scope of present trade and industrial teacher education programs includes both pre-service and in-service offerings for full-time and part-time teachers. Very few full-time students are enrolled in teacher education institutions for a bachelors degree and certification in trade and industrial education. Personnel enrolled in trade and industrial teacher education programs are trained to teach industrial occupations, technical occupations and health occupations. In the Commonwealth of Pennsylvania, Temple University, The Pennsylvania State University and the University of Pittsburgh have been approved to certify individuals to teach trade and industrial subjects.

The purpose of Table 119 is to present the expenditures for vocational teacher education in trade and industrial education. The table shows a year by year breakout of expenditures at Penn State, Temple and Pittsburgh universities from 1963-64 through 1967-68. During the five year period, a total of $1,738,601 was expended in trade and industrial teacher education programs.

Data could not be obtained as to the actual number of persons certified in trade and industrial teacher education programs during the past five years. This situation occurs because of the unique characteristics of trade and industrial. For example, many of the teachers in trade and industrial education go directly into teaching from industry and must take their teacher training concurrently with their employment (in-service). Consequently, many teachers are teaching on an interim standard certificate from year to year pending completion of certain methods courses in their specialty. Some teachers never become permanently certified.

TABLE 119

STATE-FEDERAL PROGRAM EXPENDITURES IN TRADE AND INDUSTRIAL TEACHER EDUCATION INSTITUTIONS FROM 1963-64 TO 1967-68

INSTITUTIONS	1963-64	1964-65	1965-66	1966-67	1967-68	TOTAL
Pennsylvania State University	$ 67,101	$ 78,056	$105,886	$160,526	$176,664	623,682
(Adm.)					35,449	
Temple University	$ 52,115	$ 77,710	$109,469	$131,995	$178,764	614,856
(Adm.)				28,870	35,933	
University of Pittsburgh	56,456	$ 73,853	$ 93,884	$117,565	$137,790	500,063
(Adm.)				20,515		
TOTAL	$175,672	$229,619	$309,239	$438,956	$585,115	$1,738,601

Table 120 shows the personnel enrolled in pre-service, in-service and degree programs in trade and industrial education institutions from 1963-64 through 1967-68. The number of personnel enrolled in pre-service trade and industrial teacher preparation courses in the three institutions increased from 341 in 1963-64 to 656 in 1967-68. In-service enrollments increased from 626 to 1,267 during the five years, more than a 100 percent increase. Temple University had significantly more individuals enrolled in in-service programs than the other two institutions. The number of personnel enrolled in degree programs is much lower than individuals enrolled in pre-service and in-service programs. However, many of the same individuals that are enrolled in pre-service and in-service programs may also be enrolled in degree programs.

TABLE 120

PERSONNEL ENROLLED IN PRE-SERVICE, IN-SERVICE AND DEGREE PROGRAMS IN TRADE AND INDUSTRIAL TEACHER EDUCATION INSTITUTIONS FROM 1963-64 THROUGH 1967-68

PROGRAM AREAS AND INSTITUTIONS	1963-64	1964-65	1965-66	1966-67	1967-68	TOTALS
			Pre-Service Enrollments			
Penn State	100	117	167	220	186	790
Pitt	126	176	161	239	236	938
Temple	115	246	264	342	234	1,201
TOTALS	341	539	592	801	656	2,929
			In-Service Enrollments			
Penn State	155	175	288	333	331	1,282
Pitt	72	112	128	92	118	522
Temple	399	470	495	552	818	2,734
TOTALS	626	757	911	977	1,267	4,538
			Degree Program Enrollments			
Penn State	6	12	12	22	15	67
Pitt	78	83	92	86	86	425
Temple	94	108	111	88	115	516
TOTALS	178	203	215	196	216	1,008

There were 20 full-time and part-time staff members in trade and industrial teacher preparation institutions in 1963-64. By 1967-68, this number had increased to 45. The clerical staff showed gains from six to eight during the five year period. There was an urgent need for additional clerical help at all three institutions.

Trade and industrial teacher education departments indicated that recruitment for trade and industrial potential teachers is usually done by announcements in local news media regarding registration for new classes, mailing schedules to individuals, and personal contacts of students that are already enrolled. Much of the recruitment in trade and industrial teacher education is also done by local program administrators based upon their need for a certain teacher at a given time. The potential teacher is often encouraged to leave industry, enter the teaching field and immediately start in-service courses leading to certification. After successfully competing with industry to attract technical talent for trade and industrial teaching, the difficult problem is the development of teaching skills which he usually does not possess. All of this situation requires attractive salaries and strong in-service programs for trade and industrial teachers.

Changes have been made in trade and industrial teacher education programs since the passage of The Vocational Education Act of 1963. Increased appropriations resulted in program and staff expansions with certain innovations to include the following:

1. Current programs include more emphasis on research activities, graduate programs and instructional materials development. At Temple University, emphasis has been placed on a regional concept of service; integrating the needs of all individuals in trade and industrial education, i.e. field services, research and development, occupational testing and curriculum development.

2. At Temple University, potential teachers are being oriented toward the problems of the disadvantaged by conducting research studies and interacting with anti-poverty agencies. In many courses, stress is placed upon the problems of the disadvantaged.

3. Some changes in the content of courses have occurred. Although, no new or special courses have been added, changes in course content have been made with respect to the interpretation of the vocational education acts, State laws and social problems. Authorities also indicated that no courses had been dropped during recent years.

4. There was very little change reported in teaching methods and techniques, except in the greater use of overhead projectors and other visual aides in lesson presentation.

5. Improved department organization including additional personnel for special program functions, and the designation of a department chairman. The changes and additions have provided greater flexibility of resources.

Within the area of health occupations, the Department of Vocational Teacher Education of The Pennsylvania State University has been conducting annually a five day in-service workshop for teachers of practical nursing. Classes for the two-credit industrial education course were conducted on the University Park campus. All instruction was planned to meet the specific needs of practical nursing instructors. Subjects of the three workshops conducted to date were unit planning, lesson planning and testing.

An annual non-credit conference for coordinators of practical nursing has been conducted cooperatively between The Pennsylvania State University and the State health occupations staff. These conferences provided opportunity for joint curriculum planning and revision and discussion of administrative procedures with those who operate local practical nursing programs.

The State health occupations staff is responsible for informal in-service education (non-credit) through orientation of local administrative personnel in establishment of new health occupations education programs.

Many individuals employed to teach health occupations courses are enrolled in trade and industrial education courses at the University of Pittsburgh, The Pennsylvania State University and Temple University. However, there are no other formal teacher preparation courses in the health occupations in the State.

RECOMMENDATIONS

The following are several recommendations that are intended to help improve the present programs of trade and industrial teacher education in the three institutions conducting this program:

1. Representatives of the three trade and industrial teacher education institutions need to meet with appropriate Department of Public Instruction personnel to review the various curriculums with a view toward revising and unifying them in the light of the new purposes and emphases in The Vocational Education Amendments of 1968, P.L. 90-576.

2. The three trade and industrial teacher education institutions with the cooperation of the State agency should collaborate in developing criteria to evaluate the effectiveness of their teacher education programs.

3. There is great need for a teacher education program in technical education in Pennsylvania especially to meet the growing demand for posthigh school technician instructors. Very few, if any, teacher education institutions in the East are attempting to meet this need. Pennsylvania State University with its Off-Campus Technical Education Centers is in good position to establish and conduct such a program.

4. In view of the serious social problems in both urban and rural areas, the potential trade and industrial teachers should have every possible opportunity to get basic instruction in the social science disciplines, especially in industrial and labor economics and industrial sociology.

5. There needs to be developed a follow-up program of certificated trade and industrial personnel leaving the various institutions so that the universities and the State agency will know what happens to personnel after they have been certificated. Such a system would also contribute to evaluation of the teacher education programs.

CONCLUSIONS AND IMPLICATIONS

Teacher education programs for vocational teachers were initiated and developed in Pennsylvania in accordance with the particular needs of major occupational categories in the labor force. Therefore, teacher education programs were organized and conducted for agricultural education, business education, distributive education, home economics education and trade and industrial education with special concern for the unique requirements and problems of each area. Although, the actual arrangements for teacher education show variations between institutions and within vocational areas, all institutions have followed certain basic guidelines in preparing vocational education teachers to meet certification requirements.

Increased Federal and State expenditures for vocational teacher education during the past five years have made it possible for institutions to expand facilities and equipment, research activities, graduate programs, curriculum development projects and in-service activities.

The rapid growth of vocational education programs at all educational levels makes it clear that vocational teacher education must not only expand, but change significantly in a number of ways. Such change must take into account the continuing demand for a more sophisticated corps of new and experienced teachers. New and veteran teachers must become better informed and come to understand more clearly the changing philosophy of vocational education in addition to their training for competency in particular occupational areas. Teachers currently in the field, and those preparing to enter in the future, must also develop a greater understanding of the relationships between their specialty fields and the social sciences.

The major focus of teacher education programs has been on pre-service education of prospective teachers. Although, this aspect of the program is of the utmost importance, many more in-service programs need to be offered to experienced teachers. There is a needed renaissance in vocational teacher education that does not detract from or minimize existing programs, but that will expand and broaden the scope of vocational education in the light of new and important responsibilities. Provisions should be made for maximum flexibility and innovations in meeting the need for professional and occupational competence by potential and employed vocational teachers in order to assure instruction that is relevant for students entering a changing world of work. Such programs and activities should include:

1. Updating the skills and knowledge of the instructional area concerned, including advanced technology

2. Updating skills and knowledge in professional education so that teachers may review and use research results having implications for teaching and learning

3. More experience in the use of new materials and media of instruction

4. An opportunity to participate in workshops, seminars, clinics. conferences and other organized meetings in related areas and other disciplines

There appears to be an urgent need for all areas of vocational teacher education to adopt a unified approach to the education of competent vocational teachers and vocational leaders. This does not mean that all vocational teacher preparation should be in a single or identical pattern. However, it does indicate that there is a need to analyze and synthesize the common elements and the differences in programs of all vocational services (especially within a single university) in order that more effective teacher education programs can be developed. In some cases where teacher education institutions offer courses such as philosophy, principles, methods, organization and administration, and coordination techniques in each vocational area, a wasteful duplication occurs. Although, the unique features of each service area should not be neglected, the duplication of courses does not provide for the most efficient use of the short supply of competent teacher education personnel. A broad division of labor could be just as effective and more economical. The suggested unified approach would also serve to bridge the communication gap between occupational areas. teacher educators and all other vocational leaders.

Vocational teacher education will be challenged to make more adequate provisions for occupational guidance, programs for groups and individuals with special needs and problems, differentiated staffing, and posthigh school programs. All of these areas would benefit from a broad unified approach to teacher education programs suggested here.

Vocational teacher education must continue to play a major role in the pursuit of excellence in teaching and to serve the vocational needs without sacrificing quality. The future and the quality of vocational education will be determined, in a large measure, by how well the vocational teacher has been prepared.

GENERAL RECOMMENDATIONS

The following general recommendations apply to all teacher education institutions and programs:

1. There is need to develop new well-defined written agreements between the State agency and the cooperating teacher education institutions arranging for vocational teacher education services. The signed agreements should describe in detail the conditions under which the services will be offered and the responsibilities of both agencies. A clause should be included to provide that the agreements should be reviewed annually and revised as necessary.

2. Vocational teacher education institutions and the appropriate agencies within the State Department need to work cooperatively in the development of an annual effective follow-up record of personnel certificated for initial entry into teaching, especially in the area of trade and industrial education. A follow-up system would make it possible to determine the annual output of graduates and provide one means of evaluating the teacher education programs annually.

3. Recruiting and selecting students for vocational teacher education programs should be given greater attention by the colleges and universities. Institutions with rigid restriction on the number of students that can be accepted into the various departments need to modify the limitations when the new teacher demands warrant and where existing facilities are adequate to accomodate increased enrollments.

4. Greater emphasis must be placed upon the training of potential vocational teachers with the practical experience and techniques necessary to teach persons having special needs including those with academic, socioeconomic, or other handicaps that would prevent them from succeeding in the regular vocational education programs. Student teaching experiences should include a variety of activities in more than one school. These should include experiences in ghetto schools and depressed rural communities.

5. Increased emphasis should be placed upon conducting meaningful vocational education research especially in curriculum development and the dissemination and application of such research findings to local teaching situations.

6. Teacher education institutions should give more attention to the preparation of teachers and others for differentiated staffing roles including teachers for posthigh school programs, local administrators, supervisors, department heads, area vocational-technical school principals and paraprofessionals as supporting personnel for teachers.

7. Vocational teacher education institutions should consider the feasibility of charging more tuition for out-of-State students enrolled in in-service vocational education programs than for in-State student enrollees. This could result in more opportunities for Pennsylvania residents to become qualified vocational teachers.

8. Vocational teacher education institutions in cooperation with the Bureau of Community Colleges and the Bureau of Vocational, Technical and Continuing Education in the Department of Public Instruction should give consideration to the development of a two year associate degree program* in the community colleges for the recruitment and training of pre-service and in-service occupational education teachers at the posthigh school level. The curriculum in such a program could be based upon an industry-college cooperative arrangement so that the student receives skill training and work experiences in industry, as a paid worker under college supervision, plus an associate degree involving courses in general education and appropriate professional education. The professional education could occur over a two year period during the evening hours. Such an arrangement could aid in faster development of more well-qualified teachers for occupational training programs particularly to meet the growing demand for vocational teachers at the posthigh school level. Supplementing such a program could be a leadership development system designed to meet the growing need for competent administrators and supervisors of occupational education programs at both the secondary and postsecondary levels.*

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*These recommendations and suggestions were derived from proposals developed by Dr. George H. Parkes in his work with the faculty of the Williamsport Area Community College, Williamsport, Pennsylvania. Further detailed information regarding the implementation of these proposals can be obtained from Dr. Parkes.

VOCATIONAL TEACHER CERTIFICATION

The Vocational Education Act of 1963 provided the funds necessary to stimulate the expansion of existing vocational education programs and the development of the area vocational-technical school concept in the Commonwealth. The expansion of the area schools from five in 1962 to 43 now operating has created a staffing problem that could not be resolved within the existing certification regulations established for vocational teachers, supervisors and administrators. The staffing problem will become more critical each year as the goal of 67 area schools in operation by 1975 is attained. In addition to the increased need for instructors and administrators for the area schools, there is an increasing demand for instructors and supervisors to meet the needs created by expanding and new vocational programs in the comprehensive high schools and the growing community colleges. As the impact of The Vocational Education Act of 1963 became apparent, plans were developed early in 1965 to review the certification regulations controlling the issuance of vocational certificates.

Prior to this, in 1963, the State Board of Education Committee on Teacher Certification called for a complete review and revision of the Teacher Certification Regulations as adopted by the State Council of Education in 1961. The issuance of certificates under the 1961 regulations was a mechanical process of counting credits submitted on multiple transcripts to the Teacher Certification Bureau. As a consequence, the issuance of certificates was delayed as much as six months. Further justification for the review and change in regulations was the trend toward program approval within teacher education institutions.

PROGRAM APPROVAL PROCEDURE

Under the program approval approach to teacher certification, a graduate of an approved program, whom the vocational teacher education institution recommends as having successfully demonstrated competency in teaching, will automatically be issued a teaching certificate by the Superintendent of Public Instruction. A graduate of a non-approved program must present a transcript of studies completed to the Bureau of Teacher Education and Certification for evaluation before a certificate may be issued. By recognizing the programs that have an acceptable rationale for not adhering to certification regulations, the State provides and opportunity for flexibility without eroding standards for the professional education of teachers.

REVIEW OF TEACHER CERTIFICATION REGULATIONS

The period between 1963 when the State Board called for a review and revision of the Teacher Certification Regulations, and January 1967 was devoted to research, study and preliminary work by committee members, advisory groups and personnel from the Department of Public Instruction. From January 1967 to November 1968, the proposed regulations were taken to the field for review and criticism. Reaction from the field necessitated many revisions in the original draft of the regulations.

The eleventh draft adopted by the State Board of Education at its November 1968 meeting provided a workable document for program approval. Annual reviews are planned to provide for changes as needed due to changing social conditions. The adopted regulations are intended to give assurance that competent professional personnel serve the vocational and occupational needs of youth in the Commonwealth. Vocational educators were involved in the drafting of new regulations and the majority of their recommendations are included in the approved document. The approved document does not require that persons must complete a degree to meet certification requirements but that an applicant for a certificate shall have completed, in addition to all legal requirements, a program of teacher education approved by the Superintendent of Public Instruction and shall have received the recommendations of the preparing institution. The Superintendent of Public Instruction shall issue three levels of vocational instructional certificates. A brief description of each follows:

> THE VOCATIONAL INSTRUCTIONAL I CERTIFICATE shall be issued for entry into a vocational teaching position in the schools of the Commonwealth. The applicant shall have two (2) years of experience beyond the learning period in the occupation to be taught, shall have completed the occupational competency examination, and shall have completed eighteen (18) semester credit hours in an approved program of vocational teacher education in the appropriate vocational field.
>
> The certificate shall be valid for a period of three (3) years from date of issuance, and it may be renewed for an additional four (4) year period upon the completion of an additional eighteen (18) semester credit hours of study in an approved program in the appropriate field of vocational education . . . .

> THE VOCATIONAL INSTRUCTIONAL II CERTIFICATE shall be a permanent certificate issued to an applicant who shall have completed three (3) years of satisfactory teaching on a Vocational Instructional I Certificate, and shall have completed a total of sixty (60) semester credit hours in an approved program in the appropriate field of vocational education . . . .
>
> THE VOCATIONAL INSTRUCTIONAL III CERTIFICATE shall be a permanent certificate issued to an applicant who shall have completed five (5) years of satisfactory teaching on the Vocational Instructional Certificate I or II and shall have completed a total of ninety (90) semester credit hours in an approved program in the appropriate field of vocational education . . . . [1]

The Superintendent of Public Instruction may issue a non-renewable three year Vocational Interim Certificate to individuals to teach in public schools based on the conditions that he:

1. shall present evidence of adequate work experience beyond the learning period in the occupation to be taught.
2. shall have completed an approved course in the orientation of teaching vocational education in the appropriate field.
3. shall be enrolled in the appropriate approved vocational field of study at a regionally accredited college or university.[2]

The Vocational Interim Certificate provides an opportunity for an individual to complete successfully the occupational competency requirements for the Vocational Instructional Certificate during the first year. The certificate is revoked if the teacher does not perform satisfactorily or if the teacher does not pursue a prescribed course of study at an approved institute. Other types of certificates include a Vocational Adult Extension certificate issued for three years and may be renewed an a Provisional Coordinator of Vocational Education Certificate. The latter certificate is issued to an individual who has completed three years of successful teaching experience and ninety semester credit hours in an approved program. The certificate is issued for a five year period and is renewable for an additional five years upon completion of fifteen semester credit hours in an approved program in the appropriate field. Although an individual receiving the Coordinator of Vocational Education Certificate has the primary responsibility of assisting in the administration and supervision of a specific area of vocational education, there are no degree requirements for certification.

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[1] State Board of Education of the Commonwealth of Pennsylvania, Certification of Professional Personnel Chapter X, Section 10-300.

[2] Ibid;, Section 10-300.

The certificate becomes permanent upon the completion of 30 credit hours beyond the 90 credits required for initial issuance.

An out-of-State applicant is required to submit to the Superintendent of Public Instruction an official transcript and an affidavit of educational preparation and work experience before a certificate may be issued. His records are evaluated by the Superintendent of Public Instruction and are equated with a comparable approved program within a Pennsylvania institute.

Based upon the evaluation, a certificate may be issued. No provisions are made for certifying the teacher coordinator of cooperative vocational and technical education programs or the coordinator of work study programs.

CONCLUSIONS

The shortage of certified teachers in vocational education and the need to update vocational certification standards have caused the State Board of Education to study, revise and adopt new certification regulations that are flexible and comprehensive.

The new certification regulations provide that an individual may receive certification to teach vocational education with two to three years of prescribed experience without having received a degree, provided he has taken a minimum of 18 hours of course credits in an approved institution and successfully completes the occupation competency examination. An individual that receives a degree in an approved vocational teacher education institution, may also become certificated without the experience criterion. Permanent certification may be issued to an individual who does not have a degree upon the successful completion of 60 credits in an approved program and three years of successful teaching experience, provided he has recommendations from the superintendent of the school district. A certificated individual with a degree must successfully complete 24 graduate credits and three years of experience to become permanently certified.

The major advantage of the new certification regulations is that it is possible to certify personnel for teaching without a degree in occupations such as ornamental horticulture, institutional food service, carpentry, electronics and other occupations requiring two or three years of experience to gain competence. The new certification regulations should assist administrations in area vocational and technical achools in securing and certifying competent non-degree instructors to teach in trade and technical fields. It is the opinion of vocational educators that an experienced person in certain trade and technical occupations may have more to contribute to students than an individual with four years of college preparation and little or no work experience in the occupation he will teach. The non-degree requirement does not eliminate the need for certified persons with degrees in vocational education teaching fields, but provides an avenue by which to certify otherwise qualified persons.

The new certification regulations should provide an opportunity for teacher training institutions to redesign programs to prepare individuals for certification in a variety of vocational fields. The effectiveness of the new certification regulations will depend upon how well the institutions interpret the new regulations and design programs for individuals to meet acceptable standards. Approved vocational teacher education institutions must be careful to avoid sacrificing quality teaching in the preparation and certification of teachers without degrees.

RECOMMENDATIONS

1. The Vocational Education Amendments Act of 1968 (P.L. 90-576) emphasizes special needs program for the disadvantaged that must be implemented if the Commonwealth desires to make maximum use of available Federal vocational funds. To staff the special programs adequately, it will be necessary to create new teaching titles, develop job specifications and prepare certification requirements for each special area. It is recommended that immediate action be taken to amend the Teacher Certification Regulations as adopted by the State Board of Education to include the certification of teacher-coordinators of cooperative vocational-technical and occupational education, coordinators of work-study programs as well as special teachers in hard core unemployed areas.

2. Teacher education institutions must strive to evaluate carefully the work experiences of non-degree potential teachers. The required teacher preparation courses offered by approved institutions for non-degree teachers must be of the highest quality to assure that these teachers will acquire effective teaching methods.

3. Teacher education institutions must strive to develop programs to prepare paraprofessionals and technicians for certification in vocational education. This classification of personnel can fulfill a needed support role in instructional programs.

4. Teacher education institutions should make provisions for establishing unique programs to prepare and certify individuals with or without degrees, to teach in core city and urban crisis areas.

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SECTION V--ANCILLARY SERVICES

CHAPTER XI

VOCATIONAL GUIDANCE SERVICES

INTRODUCTION

An underlying theme of this study of vocational education is that young people must have professional assistance in preparing for and locating their places in the changing world of work. Educators are not alone in recognizing this need. Students readily admit that they want help in planning for their education and in choosing a job.[1]

Considering the priority that Americans place on the "Go to College" theme, and observing the time consumed in helping students gain information about admission to institutions of higher learning, it is obvious that counselor attention to the career development of all students will be too late and too little. This is not an indictment of counselors. It is a statement of fact with serious consequences for our youth.

While it is not the intent to promote or discount any one theory of vocational guidance, this study does have a major responsibility to discharge--to investigate the status of vocational, technical and continuing education in Pennsylvania. Since the Vocational Education Act of 1963, the rules and regulations for administering vocational education, and the Vocational Education Amendments of 1968 incorporate vocational guidance in the definition of vocational education, some bias for guidance activities that will better serve the vocational education student and the "vocationally-oriented" student as opposed to the "college oriented" student is emphasized. In view of the need of all students for learning to maneuver in the world of work, and considering the large numbers of students who do not complete their college plans, the particular press for vocational planning as a guidance function need not be a serious limitation to the objectivity of the study.

A well-known, but often overlooked, contingency in our bureaucratic system is the possibility that the plans and activities of one governmental or educational agency may already be contemplating or working toward the solution of a defined problem. Even though the investigators have attempted to maintain contact with those agencies serving guidance personnel to fairly report their efforts, any oversight is certainly unintentional. Rather than a real limitation to the conclusiveness of the study, this duplication of responsibility for vocational guidance is treated as a weakness of the program for vocational development of the student.

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[1] Purdue Opinion Polls, Measurement and Research Center, Purdue University, Lafayette, Indiana.

NATIONAL PERSPECTIVE

The Vocational Education Act of 1963 and the Vocational Education Amendments of 1968 have emphasized the need for State and local programs to provide vocational guidance and counseling services to students. According to the Rules and Regulations for the Administration of Vocational Education as revised in 1966, vocational guidance and counseling services is a recognized program for vocational education instruction. Section 104.13 (k) Vocational guidance and counseling states: "The program of instruction will provide for vocational guidance and counseling personnel and services sufficient to enable such a program to meet and continue to meet the standards and requirements of this section." Provisions governing the use of funds for vocational guidance programs are given in section 104.18.

> "Vocational guidance and counseling services.
> a) The State plan shall provide for such vocational guidance and counseling personnel and services as are required by the program of instruction pursuant to 104.13(k), and describe such provisions on both the State and local levels with information on the requirements of vocational guidance and counseling services which are designed to (1) identify and encourage the enrollment of individuals needing vocational education, (2) provide the individuals with information necessary for realistic vocational planning, (3) assist them while pursuing the plan, (4) aid them in vocational placement, and (5) conduct follow-up procedures to determine the effectiveness of the vocational instruction and guidance and counseling program.

b) The State plan shall provide that the State Board maintain an adequate staff to (1) develop, secure, and distribute occupational information, (2) provide consultative services concerning the vocational aspects of guidance, and (3) give leadership to the promotion and supervision of better vocational guidance and counseling services at the local level. In carrying out these responsibilities, the State Board shall utilize the resources of the State employment service pursuant to the cooperative arrangements provided for in 104.7."

"104.7. Cooperative arrangements with State employment service.
a) The employment offices will make available to the State Board and local educational agencies occupational information regarding reasonable present and future prospects of employment in the community and elsewhere. The State plan shall provide how such information, along with all other pertinent information, available, will be considered by the State Board or local educational agencies in providing vocational guidance and counseling to students and prospective students and in determining the occupations for which persons are to be trained, and in providing such training.

b) Guidance and counseling personnel of the State Board and local agencies working through the cooperative arrangement will make available to the local public employment office information regarding the occupational qualifications of persons having completed or completing vocational education courses in schools. The State plan shall provide how such information will be considered in the occupational guidance and placement of such persons."

The Vocational Education Amendments of 1968 (P.L. 90-576) include vocational guidance and counseling in the definition of vocational education. Section 108 (1) reads, in part: "-----; and such term includes vocational guidance and counseling (individually or through group instruction) in connection with such training or for the purpose of facilitating occupational choices; instruction related to the occupation or occupations for which the students are in training or instruction necessary for students to benefit from such training; job placement ----." Under "Uses of Federal Funds" in Part B--State Vocational Education Program, it is stated in Section 122, (a), "Grants to States under this part may be used, in accordance with State plans approved pursuant to Section 123, for the following purposes: (6) vocational guidance and counseling designed to aid persons enumerated in paragraphs (1) through (4) of this subsection in the selection of, preparation for, employment in all vocational areas."

Reports of national conferences, seminars, follow-up studies, and surveys, give much visibility to the thinking of persons concerned with counseling and counselor education programs with emphasis on vocational guidance.

The Subcommittee on Career Guidance of the Committee on Specialized Personnel published a report, Career Guidance, in June, 1967. They made 20 recommendations covering four general areas. For increasing the supply of high quality guidance services they recommended:

(1) Added support to be given by the U.S. Office of Education and Department of Labor for improving counselor preparation and training,

(2) Increase salaries and improve working conditions of counselors,

(3) Orient teachers to their role in the guidance process,

(4) Recruit and equip unemployed and underemployed adults to fill appropriate guidance roles,

(5) Reimburse counselors for participating in programs to update and upgrade their skills,

(6) Encourage use of subprofessionals in the guidance process, and provide clerical and other assistance to counselors.

A second consideration was that counseling and guidance services to assist in achieving occupational fulfillment should be made available to each individual as a major factor in personal adjustment. This would be brought about through:

(1) Providing adequate career guidance,

(2) Intensifying efforts to meet needs of the under-utilized, unemployed, and/or disadvantaged groups that their talents might be identified, developed, and utilized,

(3) Supporting career guidance programs and services on a continuing basis to adult workers.

A third support area was identified as a need to establish national and regional educational laboratories for research, experimentation, and demonstration work in counseling work in counseling and guidance, and support other organizations in improving guidance practices. This was to be accomplished through:

(1) Establishing a National Laboratory for Research and Development in Guidance,

(2) Coordinating regional educational laboratories activities with those of the National Laboratory to devote a portion of their work to guidance,

(3) Supporting additional experimental and demonstration work as counseling effectiveness, course development for occupational information, pre-employment and apprentice training course curriculum development, group and multiple counseling techniques, applying information technology to guidance, and developing and disseminating guidance information materials,

(4) Screening and making available specific vocational information,

(5) Distributing copies of the Occupational Outlook Handbook and Dictionary of Occupational Titles to all secondary schools.

Concepts of the "world of work," not being the same for all people, were to be given meaning and vitality on the part of clients by:

(1) Having counselors draw on community resources for information career guidance,

(2) Having industry, universities and others propose forming task forces to enrich local programs of guidance,

(3) Supporting use of games, simulations, and role playing experiences in the classroom,

(4) Developing ways of unifying guidance services for meaningful and effective longitudinal career process for clients,

(5) Supplementing the individual and personal approach to guidance through modern information technology,

(6) Supporting development of a national manpower and occupations information system to meet current needs.

Counselor Development in American Society (1965) and Vocational Aspects of Counselor Education (1965) present problems in counselor education and recommendations for workable solutions. While concern is reported for increasing the supply of certified counselors, recommendations are also made for improving the competencies of counselors through preparation in vocational development, relevant practicum training, vocational field experiences, interdiciplinary studies, and more effective utilization of existing educational-occupational information and techniques.

Guidance in Vocational Education (1966) , Occupational Information and Vocational Guidance for Non-college Youth (1966), and Vocational Guidance in Secondary Education (1966) focused on counselor functions and services. Heavy emphasis was placed upon the need for counselors to assist students in gaining deeper meaning and vitality for work. The use of counselor time needs thorough examination to assure all students the availability of guidance services. Systematic and realistic design of guidance programs to achieve clearly stated objectives could be the key to more effective counseling with limited resources. Job placement services, though a controversial issue in theories of guidance, can be a valuable asset to the students, counselor understanding of vocational problems, and evaluation of the guidance process, when the counselor is not forced to make evaluative judgments which would jeopardize his image as a helping person.

Weaknesses in the guidance services to youth were indicated in The Role of The Secondary Schools in the Preparation of Youth for Employment. It was pointed out that the vocational student, most in need of good guidance services, receives the least attention.

The recommendation was made for extending vocational orientation to grade school students, acquainting them with tasks and values of all types of occupations, with the anticipation that the image of vocational education would improve to the benefit of students who should be aware of its merits.

A follow-up study of secondary school graduates, The Process and Product of T & I High School Level Vocational Education in The United States (1965), did not set out to provide data on controversial issues, but some issue-related variables were described. The graduates gave relatively low ratings to vocational counseling, placement services, teacher interest in student problems, and opportunity for extra-curricular activities. Most recommendations did not differ from those of other studies. Dr. Eninger did report that the provision of job placement services had higher correlation with the apparent effectiveness of vocational education programs than did any other single factor.

PENNSYLVANIA PERSPECTIVE

An analysis of the total guidance and counseling program for Pennsylvania is impractical. However, the history of guidance services in the State, current and developing philosophy of guidance expressed by State and local personnel and the structure and implementation of local counseling and guidance programs do conceptualize the setting for vocational aspects of guidance.

A State plan for guidance in Pennsylvania schools was implemented in 1959-60 to reimburse local districts from National Defense Education Act funds for additions, extensions, and improvements in the secondary school guidance programs. The Bureau of Guidance Services is working with the Division of Evaluation of The Bureau of Curriculum Development and School Evaluation to effect a self-concept by local districts of their guidance programs. State assistance will be provided to local districts in this effort and in incorporating needed changes. For 1967-68, all 550 school districts reported guidance programs, of which only 19 were not approved. Qualified counselors in 1967-68 numbered 2,272 or a ratio of one counselor to 487 students. The ratios per district actually ranged from less than 1:300 to over 1:801.

Pennsylvania's State Plan for Vocational Education is consistent with Federal legislation, in that vocational guidance and counseling is listed as an ancillary service. A cooperative agreement exists between the Pennsylvania State Employment Service and the State Board for Vocational Education, whereby information about and services to students will be shared.

The Division of Vocational Guidance operates as part of the Bureau of Guidance Services but focuses its activities on the vocational aspects of guidance. The Director of the Bureau of Guidance Services, and the Coordinator for the Division of Vocational Guidance emphasized the need for greater financial and personnel support for the effective implementation of vocational guidance activities at State and local levels. Vocational education funds currently support the staff activities of the Vocational Guidance Division.

State guidance leaders concurred in their opinion that local guidance programs should be comprehensive and the Director of the Bureau of Guidance Services proposed elements of such a program. Vocationally flavored elements included:

(1) Informational resources for use by students in support of educational, vocational, and personal decision-making,

(2) Orientation activities to reduce "shock" in the transition from school to work,

(3) Placement assistance for students entering the labor market from the secondary school.

The vocational guidance staff are involved in developmental activities encompassing the work of counselors in all secondary schools, are vocational schools, and in those elementary schools organizing vocational or career development programs. Workshops, inservice programs, and individual consultations are conducted with and for counselors and administrators, and informational services are being provided. Vocational Guidance Week observances are supported and encouraged to highlight continuing efforts in the career development of individuals.

The Report on Pennsylvania Data from a National Follow-Up Study of High School Level T & I Vocational Graduates (1968) contains valuable resource material on graduates, their jobs, and sources of influence on course and job selection. Some conclusions challenge counselors to provide more vocational guidance as a means of increasing the holding power of vocational education, of encouraging more non-college bound academic students to enter vocational programs, and of becoming a greater source of influence on vocational course selection by those who are admitted to vocational programs.

A survey to ascertain the availability of guidance services in the area vocational technical schools (AVTS) of Pennsylvania was conducted in 1967 by the Bureau of Guidance Services. At that time there were 22 AVTS in operation throughout the State. Twelve of the persons responsible for guidance services in the AVTS were certificated. More certificated counselors reported that good to excellent guidance activities were conducted in their schools. This may mean that more services were conducted by these counselors, or it may mean that certificated counselors were more aware of services that should be conducted.

An attempt was made to determine the position taken by the school administration in providing facilities, equipment, personnel, and overall leadership for an organized and functional guidance program. Fifty percent of these AVTS counselors saw their schools making inadequate provisions for occupational information materials related to the courses offered in the AVTS. Forty-one percent of the counselors considered their guidance offices inadequate to serve the needs of their students. Sixty-four percent of the counselors were encouraged by their administrations to make necessary out-of-school contacts with employers, employment personnel, and community organizations.

A second part of the survey investigated the scope and depth of guidance services actually provided in the school for the students. Although orientation activities were regularly conducted in the majority of schools, there were many students and adults receiving little or no information about the AVTS.

The procedures for admitting students to the AVTS are varied. Less than half of the counselors had some responsibility for the development of admissions criteria for different criteria. Only fifty-nine percent of the counselors reported meeting with prospective students for the purpose of course selection. Presumably, the sending school counselor would handle this matter in all other cases.

Informational activities to familiarize students with the world of work are not heavily stressed in most of the AVTS. Forty to sixty percent of the counselors report the use of instructional units, field trips, or group discussions with former students, employers or employes as means of correlating student activities with related jobs. Materials on employment procedures and employer-employee relationships were available for the students. Fifty-five percent of the counselors reported that there was in the AVTS a person responsible for the variety of activities associated with a job placement service. Follow-up studies of graduates, early leavers, or course changers were much neglected, with less than 25 percent reporting regular and periodic programs.

A survey of secondary school counselors from every school district in the State was conducted by the Research Coordinating Unit for Vocational Education in October, 1968. Questionnaires were mailed to 626 counselors employed in junior high schools, senior high schools, junior-senior high schools, and area vocational-technical schools. Three hundred thirty-seven questionnaires, or 53.8 percent of those mailed out, were used as the basis for this counselor assessment of vocational guidance and counseling activities.

Counselor ratings for 160 statements were tabulated according to the grade level of students counseled. The distribution of total responses was given prime attention with data from the distinct groups being introduced where large differences were observed. Counselors were asked to rate specific duties and activities according to the emphasis given in working with their students.

Analysis of responses was made according to the four objectives of the survey.

1. Existence of Vocational Guidance Activities in the local guidance program.

An examination of the responses about career planning, occupational information, vocational needs of special groups, job placement, local business and employers, and counselor sources of information revealed that counselors in grades 7, 8, and 9 put very little emphasis on vocational counseling. Dissemination of occupational information to students was the major vocational guidance activity for all groups. Sources of information were rather general in nature and very few counselors reported using local data. Although job placement was not a major concern of most counselors, the indication was that students learned about jobs through guidance activities.

2. Relative Importance of Vocational Aspects of Guidance to the Total Guidance Program.

Counselor time is heavily committed to the college oriented student, particularly in grades 10, 11, and 12. Much involvement with assisting students to develop career plans is noted. Only the AVTS counselors reported extensive work in job placement services. Agreement was reported as basing student admission and investigation of vocational programs on the talents, aptitudes, and interests of students. With the exception of the AVTS counselors, job information was related to the present rather than projected needs of employers.

The need for more individual and group counseling was rated higher than the need for student career development programs. Only slight desire for in-service programs (less than fifty percent) on vocational development was expressed by general counselors, while eighty-five percent of the AVTS counselors were concerned. Emotional problems of students were of greater concern to the majority of counselors.

3. Need for Providing Vocational Counseling and Guidance Activities.

Counselors saw students giving overwhelming support to the college preparatory course of study as highest in prestige. More than ninety percent of counselors of grades 10, 11, and 12 rated graduate success in completing college programs very high, while graduates successful in jobs not related to high school training received few high ratings.

Job placement services were not considered very important as a factor in improving student employability. Follow-up studies were likewise popular. The counselors did not see labor market demands as a strong factor in program design, or measured aptitudes as a basis for admission to vocational programs.

4. Problems Encountered in Providing Adequate Programs of Vocational Guidance.

Counselors expressed a definite need for additional professional counselors and clerical assistance, but less than forty percent saw the value of counselor aides.

Lack of time to discuss occupational materials with students was rated high on the problem list. Contacts with business and industry leaders needed to be increased and in-school commitments no doubt hampered efforts to improve this situation.

Counselor preparation and vocational experiences were inadequate to do a good job with vocational students and career development. Less than fifty percent reported that their counselor education programs had given them adequate instruction in vocational aspects of counseling. The respondents indicated they were not prepared to administer job placement services, but could see no need for occupational specialists.

Many schools in Pennsylvania reported new and improved programs of vocational guidance and counseling. Philadelphia's "Career Development Program" is an effort to extend informational and counseling services on vocational development to the elementary grades through a coordinated community and school program. Schools in Allegheny, Berks, and Chester counties are among those offering secondary school students an opportunity to hear about and discuss technical and skill level jobs with workers in a variety of situations. Counselors and classroom teachers are cooperating in the presentation of occupational materials to classes to increase student awareness of the world of work and the contribution each worker makes to the economy of the state.

State vocational guidance staff members have initiated a system of reporting current occupational information to counselors via the Counselorganizer: A Career Information Service. Hopefully, their interest in a student-user system of job information will result in a program that will reach a large number of students with current and projected needs for workers.

Advanced technology and the availability of computers and terminals should assist educators, such as those at Pennsylvania State University, in utilizing new ideas and equipment to give students immediate access to job information tailored to their particular needs.

A committee representative of counselors in the State prepared a section on vocational guidance and counseling to be included in the new State Plan for Vocational Education under P.L. 90-576, and recommended activities for implementing programs at State and local levels. The tone of the report was established by the "Scope of Program," which reads:

> "Vocational education shall include services and activities at the State and local levels sufficient to extend and improve vocational guidance and counseling programs to meet the developmental needs of individuals in the selection of, preparation for, and employment in all occupational areas. Such vocational guidance and counseling programs are designed to serve the needs of pre-vocational education students, secondary vocational education students, out-of-school youth, postsecondary vocational students, adults, handicapped persons, and those persons with other special needs."

Suggested programs for the State and local levels do not differ greatly from those previously defined in the State plan for guidance. The difference appeared in that attention was called to the emphasis placed on the consideration to be provided for all persons that could be assisted in reaching their occupational goals. It was stated that:

> "Activities requisite to the implementation of the described programs are dependent upon the funds, personnel, facilities, and materials made available to State and local agencies. In view of the people-orientation of P.L. 90-576, it is vitally important that guidance and counseling personnel at State and local levels be made aware of their responsibilities and receive the support necessary to exercise their professional expertise in implementing these Vocational Education Amendments of 1968."

Some activities recommended for State guidance staff members were identification of the needs, abilities, and interests of all persons who could profit from vocational programs; assisting local counselors in encouraging students to seek work satisfaction and self-understanding of their vocational development task level; consultation to educators; sponsoring in-service programs for vocational guidance; devising means to contribute to counselor utilization of community resources; distributing informational materials and data to improve the student image of the world of work; encouraging research to extend the vocational guidance services to all people; and participating in conferences to maintain and upgrade competencies.

Implementation of the local programs should be carried out through increasing the professional and clerical staffs; maintaining and using accurate student records; upgrading the career information resources; providing assistance to all students in vocational planning and self-appraisal; establishing better communications with faculty members and administration; developing and assisting with job placement services; and improving programs and services through evaluative techniques.

It was further suggested that the State Advisory Council for Vocational Education should include a member with guidance and counseling background. Reimbursements for vocational education to local districts should be partially based on vocational guidance activities as an incentive factor. Greater coverage for the consultative responsibilities of the State staff could be achieved by employing more consultants to operate from the State office or from regional offices.

CONCLUSIONS

What bearing do these activities and persuasions have on realistic counseling and guidance programs as they relate to the occupational life of Pennsylvania's students? Occupational security and job satisfaction are real needs of people that have far reaching effects on their physical, mental, and emotional well-being. Vocational development is the cumulative effect of all influences of the home, the school, and the community.

In his article, "The Myths of Career Development," Ralph G. Salvagno of the Civilian Personnel of the Navy Department in Washington, D.C., states that, "the challenges of career development lie in equipping the employee with the necessary knowledge about himself and reality."[2] Counseling theorists claim that counselors have a large role in career development. But for counseling to be effective, each student must be included in the guidance activities of the school. The evidence in Pennsylvania does not point to such an all-inclusive program or attempt on the part of the schools to assume responsibility for making all students aware of their future need to fill, with dignity, the different roles in the occupational spectrum. Administrators and counselors must act in concert to rectify this oversight.

The task of providing adequate vocational guidance and counseling services for all students is complex. People at all levels of authority make decisions that influence the quantity and quality of such services, often with little regard to the incidental or ultimate consequences for persons affected by their actions.

A revival of interest in preparing students for occupational competence has unmasked deficiencies in the organization and administration of services, personnel, and funds necessary for appropriate activities in vocational guidance. These areas are inter-related and must be acted upon as a whole in order to accomplish the objectives of realistic occupational, vocational, or career development for the workers emerging from the schools.

RECOMMENDATIONS---SERVICES

State and local guidance staffs must define their roles and functions in relation to the present and future needs of students.

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[2] Salvagno, Ralph G., Training and Development Journal, March, 1969., Vol. 23, No. 3 "The Myths of Career Development," p.50.

1. The Vocational Guidance Section of the Bureau of Pupil Personnel Services should set priorities on the activities outlined for implementing a State program for vocational education.[3] The cost of personnel and facilities must be stated explicity. If funds made available are inadequate to conduct the total program, resources should be apportioned to insure that priority services will not be fragmented.

2. The Vocational Guidance Section should work with the Bureau of Vocational, Technical, and Continuing Education to devise an incentive plan with ordered reimbursement for school districts meeting the program requirements of vocational guidance, counseling, and job placement services for all students.

3. Colleges and universities offering counselor education programs should be required to provide instruction in all aspects of vocational guidance and counseling, including job placement services, vocational development, and occupational information techniques.

4. The Vocational Guidance Section and the Bureau of Vocational, Technical and Continuing Education should cooperatively outline the vocational guidance services that are needed for vocational and technical students. They should further determine the means for insuring the provision of these services to those students.

5. The Vocational Guidance Section should develop a detailed plan for expanded services to local school districts. This should include evaluation of current activities, need for additional activities and personnel, and budgeted expenses to cover both continuing and proposed expansion of services.

6. The Vocational Guidance Section should enlist the financial support and personnel assistance of the Research Coordinating Unit for the development of model elementary school programs for career or vocational development.

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[3] These activities are listed in the full report of Vocational Guidance, Counseling and Job Placement.

7. The Vocational Guidance Section should step up its efforts to develop and implement a State-wide system of occupational and job information dissemination for student use.

8. The Vocational Guidance Section should initiate talks with appropriate personnel in the Office of Employment Service of the Bureau of Employment Security to collaborate on improving counseling and placement services for out-of-school youths.

9. Local school districts must review their guidance programs to determine the adequacy of services to all students in their schools.

10. Local school counseling staffs should have well stated operational objectives for vocational guidance, and have a written program of activities that will be followed in accomplishing those objectives.

11. Local school counseling programs should include adequate provision for counselor planning time, community visitations, and in-service training.

12. Local school counselors should keep informed on State and Federal legislation that affects the type of guidance services to be provided for students and that affects the work of the counselor.

13. Every secondary school should implement job placement services, either as part of, or in cooperation with, the school guidance program.

14. State and county manpower projections, developed in another part of this study, should be made available to all counselors and counselor educators, with orientation to the meaning and use of this data clearly explained.

RECOMMENDATIONS---PERSONNEL

A critical shortage of capable and well qualified counselors will continue as long as guidance positions are filled by aspiring administrators. The counselor image as seen by faculty and students is clouded by the quasi-administrative duties often assigned to or assumed by guidance personnel. It is obvious, then, that the position of school counselor must be clarified and given status of its own.

1. The counselor role should be clearly defined by each school district in terms of the operational objectives and activities of the guidance program.

2. Persons employed as counselors should meet the certification requirements of the position and receive financial compensation commensurate with their professional preparation and the responsibilities of their position.

3. School districts employing more than one counselor should appoint one counselor to be an occupational information specialist. His responsibility for occupational information includes collecting, storing, and presenting such information to staff, students, and the community.

4. Each school district should appoint a job placement service officer whose duties could include placement of graduates, early leavers, and other students participating in work-study, Neighborhood Youth Corps, work experience, and cooperative education programs. If this person is not a school counselor, his work should be coordinated with guidance and counseling activities of the schools.

5. Local school counselors should evaluate the services to their counselees, and conduct reportable research on local activities

6. Counselors must set priorities on their activities when personnel limitations exist.

7. Every secondary school guidance program requires a full-time clerical assistant.

8. Counselor aides should be trained by the local school district to assume a number of routine tasks not requiring professional counselor skills.

9. Cooperative arrangements are needed between counselors of sending schools and the area vocational-technical schools. These arrangements would vary depending on the schedule of the AVTS. Each vocational or technical school student should have the opportunity to participate in a full guidance program.

10. Local school administrators should be involved in the development of the vocational guidance program.

11. Community business and industrial leaders and personnel should be invited to participate in the local school guidance program in advisory or consultative capacities.

12. School districts having computer capabilities should investigate possibilities of computerizing guidance activities of a routine nature to free counseling personnel for more professional tasks.

13. The Vocational Guidance Section of the Department of Public Instruction needs to define the role of each staff member in order to expedite priority activities and to expand the services to local districts.

14. Regional vocational guidance specialists should be made available to local districts on a consultant basis. These specialists should also work with vocational education area supervisors and coordinators in the development of new programs and curriculum revision.

15. State and regional vocational guidance specialist should initiate research and consult with local districts conducting research in vocational guidance and guidance for vocational students.

16. Counselor education programs should provide adequate preparation in the vocational aspects of guidance for pre-service and in-service counselor trainees.

17. Counselors in Pennsylvania school districts should have the opportunity to observe local business and industrial operations as a means to better understand the occupational competencies needed by students for entry jobs.

18. Vocational counselors should be urged to seek non-professional employment as experiential background for working in vocational guidance.

RECOMMENDATIONS---FUNDS

A major problem in providing adequate guidance services to all students is the cost involved. The difficulty stems partially from the fact that counselors start at higher points on the salary scale due to their teaching years and advanced coursework. It is also difficult to seek funds for services that cannot be evaluated in terms of cost/benefit to the community. The cost effectiveness of counseling and other guidance services may never be known since they are so often catalysts for other activities and services to be used.

In spite of this problem, federal legislation over the past ten years has cited the necessity for guidance services. Such legislation has not always included authorization for funds to increase guidance services. This has been particularly true of vocational education legislation. It remains, therefore, to the ingenuity of guidance personnel and administration to devise means of securing funds for needed services. On the other hand, monies have been distributed to local districts out of National Defense Education Act funds and under the various titles of the Elementary and Secondary Education Act. Much remains to be accomplished and the following recommendations are for continued and new funding practices.

1. The Vocational Guidance Section should develop fundable proposals to investigate problem areas of vocational guidance at the State level.

2. The Vocational Guidance Section should encourage local districts having research capabilities to develop fundable proposals for exemplary or demonstration projects that could suggest flexible model programs for a variety of school districts.

3. The Vocational Guidance Section should increase its cooperative activity with the Bureau of Vocational, Technical, and Continuing Education to determine means of providing additional funds for improving vocational guidance services at all levels.

4. The Vocational Guidance Section and the Bureau of Vocational Education should jointly promote the use of Education Professions Development Act funds for the development of counselor skills in vocational areas.

5. The Vocational Guidance Section should distribute to local districts information about available funds for vocational guidance and assist the district personnel in contacting the appropriate agencies.

6. The Research Coordinating Unit (RCU) should encourage vocational educational project writers to include guidance personnel and services in the research projects to be funded.

7. The Cooperative Research Section of the Bureau of Research should encourage more small projects at the local level to improve and expand vocational guidance services to all students.

8. Local districts should increase their use of business and industry personnel and facilities in lieu of or in addition to funds for vocational guidance activities.

9. Local districts must undertake to establish higher priorities for vocational guidance services in their annual budgets.

10. Funds provided to vocational guidance services according to the present vocational education budget are inadequate ($112,000). (A very conservative estimate for providing job placement services for all school districts is one million dollars. This is determined by figuring on one-fifth of a professional person for each district earning only $8,000 per year.) School districts should be reimbursed from vocational education funds for salaries paid to job placement officers.

FINAL STATEMENT

Vocational guidance, counseling, and job placement services in Pennsylvania schools are inadequate to serve the variety of needs of the diverse student population. Until personnel responsible for providing such services recognize the many qualified sources of assistance available to them, and actively seek to involve all information, people, and facilities in the guidance programs, the present situation will not improve. Impetus for expansion and extension of quality vocational guidance services to all students must come from the Department of Public Instruction bureaus concerned with vocational education and vocational development of students. Strong backing for local programs is long overdue. Counselors and counselor educators should establish program and service objectives that can be facilitated and evaluated.

Pennsylvania's students can benefit from good vocational counseling. Services, personnel, and funds must be provided so these students are better prepared for the changing world of work.

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SECTION VI--SPECIAL STUDIES

CHAPTER XII LARGE CITIES

Big cities (a population of one million or more) include thirty one metropolitan areas of the United States. Among these are counted Philadelphia and Pittsburgh. The phenomenal growth of these "Great American Cities" has created a variety of social, economic, and educational problems.

It has become obvious that the "Big Cities" cannot solve their vexing educational problems through any single agency, group, or person. Cooperative efforts of the many educational, civic, religious, and community groups as well as business and industry together with the various divisions of government are necessary. Because certain education and vocational education problems are peculiar to the large cities, it was deemed important to make an overview of these in an effort to develop some suggestions and recommendations that would help to alleviate them.

The overview of Pennsylvania's two big cities, Philadelphia and Pittsburgh, examined aspects such as administration, vocational education offerings, students, public relations, program effectiveness, as well as information that is applicable to all of Pennsylvania's larger cities such as Allentown, Erie, Reading, and Scranton.

SPECIAL ADMINISTRATIVE CONSIDERATIONS FOR METROPOLITAN AREAS

The two great cities of Pennsylvania as well as the other large cities face unique problems in the administration of their extensive and comprehensive programs of vocational education. This uniqueness creates problems in the establishment and administration of programs which sometimes do not readily conform to the State plan for vocational education. Bulletin No. 1, Administration of Vocational Education Rules and Regulations of Revised 1966, Section 104.9, made provisions for meeting metropolitan area problems through special administrative arrangements and communications between the State and the metropolitan governments. The Pennsylvania State Plan for Vocational Education (April 1966), Section 1.43 provided for making arrangements in special areas but failed to mention metropolitan areas specifically. As a result liberal interpretation of the State Plan wording must be made by the State Director of Vocational, Technical, and Continuing Education to conform with the intent of the Federal regulations.

Another problem area that suggests a need for special consideration in the large cities is communication. In most instances, the office of the Bureau of Vocational, Technical and Continuing Education of the State Department of Public Instruction is too far removed from the local education administration of the large city schools for ready contact and assistance to be given when pressing problems arise. The volume and complexity of big city vocational education problems are sufficient causes to justify the establishment of an office of the Bureau of Vocational, Technical, and Continuing Education of the State Department of Public

Instruction in each of the two largest cities, Philadelphia and Pittsburgh. A well-qualified staff with authority to act on most vocational education program matters should be assigned to this office for continuous working relations with the local vocational education staff. This would improve communications and facilitate the implementation of program plans and policies, especially now under P.L. 90-576. However, if such an arrangement were to have maximum impact on large city program problems, the local administration plan must also be adequate to match.

LOCAL ADMINISTRATION PLAN FOR VOCATIONAL EDUCATION

The lack of appropriate administrative responsibility and authority of the chief vocational administrator can thwart efforts to achieve comprehensive program of vocational education. Inadequate authority in the planning administration and supervision of all vocational education programs within the system results in segmenting the programs, thus creating confusion and misunderstandings both within the school system and throughout the community, especially with business and industry.

Clarification of line and staff relationships in vocational education would permit better two-way communication in the line of authority thus encouraging an effective team approach in the operation of the program. A necessary basis for effective program development and operation attuned to the needs of the people and the employers is an adequate management system. In such a system the administrative relationships with school principals would need to be strengthened. The total occupational and continuing education program of the large city functions system-wide and therefore operates in schools on various levels, for example, in the:

Senior High Schools - Vocational-technical, comprehensive industrial arts, home economics, occupational, and continuing education programs.

Junior High Schools - Industrial arts, home economics and career development; special education centers and classes.

Elementary Schools - Exploratory and introductory industrial arts and home economics.

Special Programs and Classes - Out-of-school youth, job training

Adult Programs and classes - Pre-employment and re-training for the unemployed, up-grading training for the employed, related instruction for apprentices, etc; and other local, State, and Federally sponsored programs.

The principals in whose schools these programs operate must assume responsibility for total educational program. The design, administration and supervision of the occupational and adult education programs should be primarily the responsibility of the chief vocational education administrative officer. Therefore, the principals and the vocational education administrator should work closely together in a functional staff relationship but in an administrative line with the chief school administrator on administrative matters concerning the respective programs. Such an arrangement is suggested in Chart 13.

SOME SPECIFIC PROBLEMS

Related to administrative and communication problems the statistical and financial reporting procedures and arrangements between the large cities and the State. Other areas of concern are the approval of some trade preparatory and other occupational education programs in the comprehensive high schools; and a clear definition of what is reimbursable in the purchase of replacement equipment.

The large cities have had on-going vocational education programs on multi-ability levels which have provided opportunities for youth with special needs, the "average" and the vocationally talented. Continuation of many of these programs is just as important as new or innovative programs. The on-going programs have not always been static as often claimed in criticisms. Most of them have been extended, up-graded and changed to meet the changing needs of students, and the job requirements of business and industry. Program innovations are occurring and need to be accelerated to be of service to all youth and adults who have vocational-technical education needs. Encouragement by the State of new programs, innovations, and development of broad coverage by many students in the comprehensive high schools is essential and should be financially aided wherever possible.

FINANCING THE BIG CITY VOCATIONAL EDUCATION PROGRAM

The problem of financing of big city educational programs is enormous. This is especially true if only because of the size of the school population or of the segment in need of a particular program in vocational education. The large systems are operating on such a marginal level of support that necessary massive expansion and improvements cannot be implemented unless increased financial support is obtained.

A broad overview of the financial characteristics of Pennsylvania's two big cities is provided in Tables 121 and 122 .

CHART 13

THE PLACE OF THE CHIEF VOCATIONAL ADMINISTRATIVE OFFICER IN THE SYSTEM-WIDE ORGANIZATION

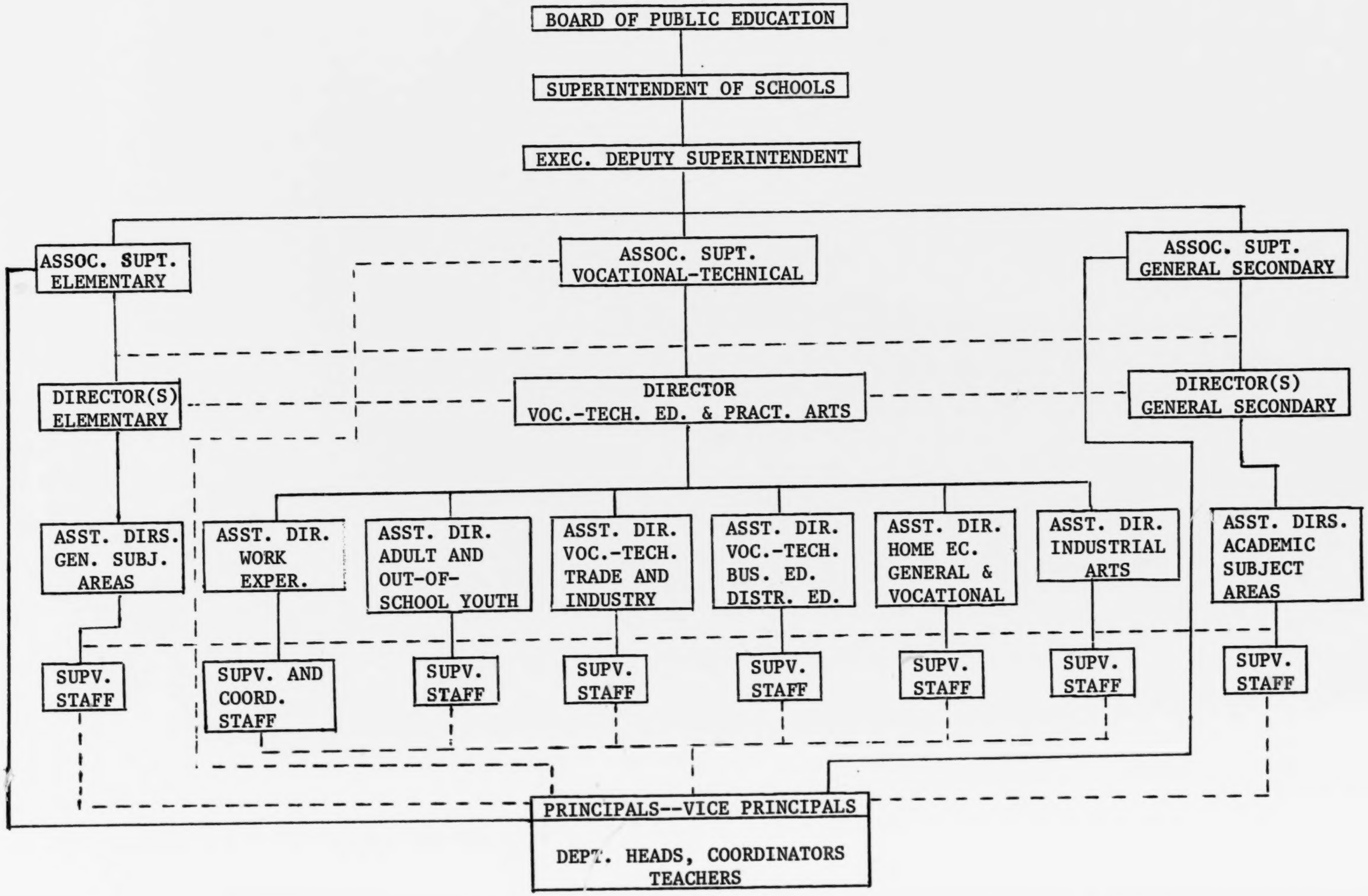

BOARD OF PUBLIC EDUCATION
SUPERINTENDENT OF SCHOOLS
EXEC. DEPUTY SUPERINTENDENT
ASSOC. SUPT. ELEMENTARY
ASSOC. SUPT. VOCATIONAL-TECHNICAL
ASSOC. SUPT. GENERAL SECONDARY
DIRECTOR(S) ELEMENTARY
DIRECTOR VOC.-TECH. ED. & PRACT. ARTS
DIRECTOR(S) GENERAL SECONDARY
ASST. DIRS. GEN. SUBJ. AREAS
ASST. DIR. WORK EXPER.
ASST. DIR. ADULT AND OUT-OF-SCHOOL YOUTH
ASST. DIR. VOC.-TECH. TRADE AND INDUSTRY
ASST. DIR. VOC.-TECH. BUS. ED. DISTR. ED.
ASST. DIR. HOME EC. GENERAL & VOCATIONAL
ASST. DIR. INDUSTRIAL ARTS
ASST. DIRS. ACADEMIC SUBJECT AREAS
SUPV. STAFF
SUPV. AND COORD. STAFF
SUPV. STAFF
SUPV. STAFF
SUPV. STAFF
SUPV. STAFF
SUPV. STAFF
SUPV. STAFF
PRINCIPALS--VICE PRINCIPALS
DEPT. HEADS, COORDINATORS TEACHERS

TABLE 121

FISCAL AID (STATE & FEDERAL) FOR SCHOOL YEAR 1967-68 BY PROGRAM AREA FOR PHILADELPHIA & PITTSBURGH

Program Area	Total Funds for Voc. Education For Pa.			Total Funds Recd. & Percent of State & Federal Total			
	State Funds	Federal Funds	Total	Philadelphia		Pittsburgh	
				Total	%	Total	%
MDTA	$ 323,797	$ 4,902,095	$ 5,225,892	$ 1,310,217	25.1	$ 1,333,502	25.5
Metro-Rural Supervision	9,519	55,551	65,070	6,070	9.3	11,080	17.0
Area Redevelopment	None	384,687	384,687	152	.04	None	--
NDEA - Title VIII	None	95,795	95,795	27,746	29.0	None	--
Industrial Retraining (2508.3)	274,115	None	274,115	141,958	51.8	None	--
Health (L.P.N.)	797,463	732,540	1,440,003	197,910	13.7	185,202	12.9
VEA (1963)	None	12,319,354	12,319,354	*236,979	1.9	643,452	5.2
Totals	$ 1,314,894	$ 18,490,002	$ 19,804,916	$ 1,921,032	9.70	$ 2,173,236	10.97

*Partial reimbursement due to audit delay.

Table 121 reveals that Pittsburgh receives a larger share of the total available State and Federal vocational education funds than does Philadelphia, which has a considerably larger enrollment. This difference may be the result of incomplete data for Philadelphia because of audit delays. It is anticipated that Philadelphia will receive considerably more after audit procedures are completed.

TABLE 122

TOTAL ALLOTMENT OF STATE FUNDS FOR EDUCATION AND PERCENTAGE OF VOCATIONAL EDUCATION ALLOTMENT TO PHILADELPHIA AND PITTSBURGH (SCHOOL YEAR 1967-68)

	Total State Funds for Ed.			Per Capita Allotment			
	K-12 Adult	Voc. Ed.		K-12 Adult		Voc-Tech. Ed.	
City	Total	Total	Vo-Ed. % of Total	Enroll	Per Capita Allotment	Enroll.	Per Capita Allotment
Philadelphia	$ 69,500,000	$ 1,921,032	2.77	290,402	$ 239.32	30,173	$ 63.61
Pittsburgh	17,000,000	2,173,236	12.8	77,752	218.51	22,071	71.96
Total State Allotment	$870,860,000	$19,805,000	--	---	---	180,998	$109.42

In Table 122 it can be seen that Pittsburgh's vocational education expenditures account for a larger part of the total educational budget of the city than does that of Philadelphia. This reflects some priority being given to Pittsburgh's vocational education effort.

Having examined some general aspects of the vocational education programs of the larger cities, the remainder of this chapter treats some of the more specific elements of the Philadelphia and Pittsburgh systems.

PITTSBURGH'S PROGRAM OF OCCUPATIONAL, VOCATIONAL AND TECHNICAL EDUCATION

As a result of the Dauwalder Study - "Vocational Education Survey" in 1963, in the Public Schools of Pittsburgh, the vocational and technical education organization and program were reorganized. The program was changed from the "traditional specialized vocational high schools" to a system of providing occupational, vocational and technical education (OVT) offerings in the comprehensive high schools of the city. Several specialized schools and centers were retained to provide educational opportunities to students in areas of the city where these offerings were not available in the comprehensive high school. None of the specialized vocational high schools or centers was to provide the complete secondary education program. Students were based in a "home" comprehensive high school where they received their general education subjects. The specialized vocational school or center provided the shop-laboratory experiences.

A "Great High School Plan" for the future was prepared to provide five large comprehensive high schools each housing 5,000 to 8,000 students. These schools would operate on the idea of the "school within the school," and would provide complete OVT programs.

OCCUPATIONAL, VOCATIONAL, AND TECHNICAL EDUCATION PROGRAMS (OVT)

Learners of all age levels and abilities were provided opportunities which lead to saleable vocational and academic competencies. Operations and program offerings in home economics, industrial arts, business, and trade and industrial education were merged in 1964 to form a new Occupational, Vocational, and Technical Division.

Over a three-year period, 1965-67, the OVT curriculum project's prime objective was to update and revitalize existing curricula and to develop new curricula. Two hundred and fifty-five teachers, and 18 consultants were utilized, and 108 programs were developed at a total cost of $233,000.

ADMINISTRATIVE ORGANIZATION

The functioning organizational pattern of the OVT Division provides administrative authority as well as responsibility for all occupational, vocational, and technical education programs on all levels of the educational system.

The designation of an assistant superintendent serving as the chief vocational education officer provides authority and responsibilities at the policy making level. It also permits functional communications with the top administration of the school system.

The position of director of OVT, directly responsible to the assistant superintendent for OVT, having functional responsibilities with all areas and levels of the vocational program unifies the total vocational education program in the city schools. The director of OVT is responsible for all secondary, post graduate, adult vocational, and practical arts programs, thereby minimizing the problems created by the segmentation of such programs.

The principals of the secondary schools (including the specialized skill centers) report directly to the associate superintendent of secondary schools. The assistant superintendent of OVT and his staff (directors, assistant directors, supervisors, etc.) are in a staff relationship to the secondary school principals. Since the principal is the administrative officer of his educational unit, and therefore, is responsible for the organization and operation of educational programs in the school, a line relationship with the assistant superintendent of OVT and the director of OVT programs could strengthen program control.

VOCATIONAL EDUCATION IN THE PITTSBURGH PUBLIC SCHOOLS

The Division of Occupational, Vocational, and Technical Education (OVT) is charged with the responsibility of providing educational programs in the practical disciplines at an appropriate age and grade level to meet the needs of day school students, post-graduate students, and adults. OVT programs are offered in the 11th and 12th grades in the high schools on a pre-employment job preparation basis. There are OVT exploratory programs in grades six through nine. These programs are basically industrial arts with a job-centered orientation. In grades nine and ten the OVT student is taught the "common threads" or elements of his tentative job-family selection.

Students may enter the job-centered programs at grade 11 through one of three routes, as follows:

(a) by being tentatively identified as a potential OVT student in grades nine and ten and follow the basic job-family program,

(b) by being allied to the academic program and follow a course of study prepared for the college-bound,

(c) by being identified as a potential dropout, age 16, several grades behind his chronological age. He can enter a job-centered program regardless of his present grade level.

General Home Economics is offered in the secondary schools and Vocational Home Economics is offered in grades 11 and 12 in:

Merchandise Clothing (closely related to Distributive Education).

Health Services - Nursing aid and home and institutional attendant.

Institutional Management.

Child Development - Care.

The Pittsburgh approach has evolved from coupling vocational education with academic education, thus leading to comprehensive programs in comprehensive schools. Often times this approach has not been received favorably because it does not fit a neat pattern of vocational education as identified by the Smith-Hughes Act of 1917 or with Area Vocational Technical Schools proposed during more recent years. The comprehensive approach has proven successful in Pittsburgh to date and is meeting the needs of center-city problems even though there has been little direction or guidelines for meeting urban vocational needs.

ENROLLMENTS IN THE OVT PROGRAMS

The enrollments in the OVT programs in the high schools have increased greatly since the reorganization of the vocational education system. In 1963, only 2,600 pupils (34.2 percent of the pupils in grades 11 and 12) were enrolled in the Business or Vocational Curricula. In the first year of operation of the new OVT division, over 40 percent were enrolled in the skill-centered programs. In the 1966-67 school year, the number increased to 5,860

(58.5 percent) in skill-centered training. Thousands of other students were enrolled in general and exploratory courses.

> OVT's total skill-center enrollment in grades 11 and 12 was 8,123 students. There were approximately 14,000 students enrolled in exploratory OVT programs in grades seven through nine, as of May 1968.

As the Great High School program develops in Pittsburgh, and as the New Middle School project begins, the OVT responsibility becomes even greater. Every child should have an OVT exploratory experience in grades six, seven, and eight. Some students will desire a narrowed exploratory program in grades nine through 12; and up to seventy percent of the 11th and 12th grade students need skill-centered training in order to make their high school training appropriate and relevant of their needs.

Tables123 and124 show how program offerings were selected and the programs in the broad categories.

IMAGE OF VOCATIONAL EDUCATION IN PITTSBURGH

The OVT Division in Pittsburgh, as in most big cities, has increased its efforts to extend and improve the image of vocational education throughout the community. The effectiveness of these efforts vary. Management, labor and lay groups that have been in close contact with a vocational program in a school, or schools, generally are complimentary. Those groups that have not had direct contact with the program, or some phase of it, are quick to question the need for or the effectiveness of the program.

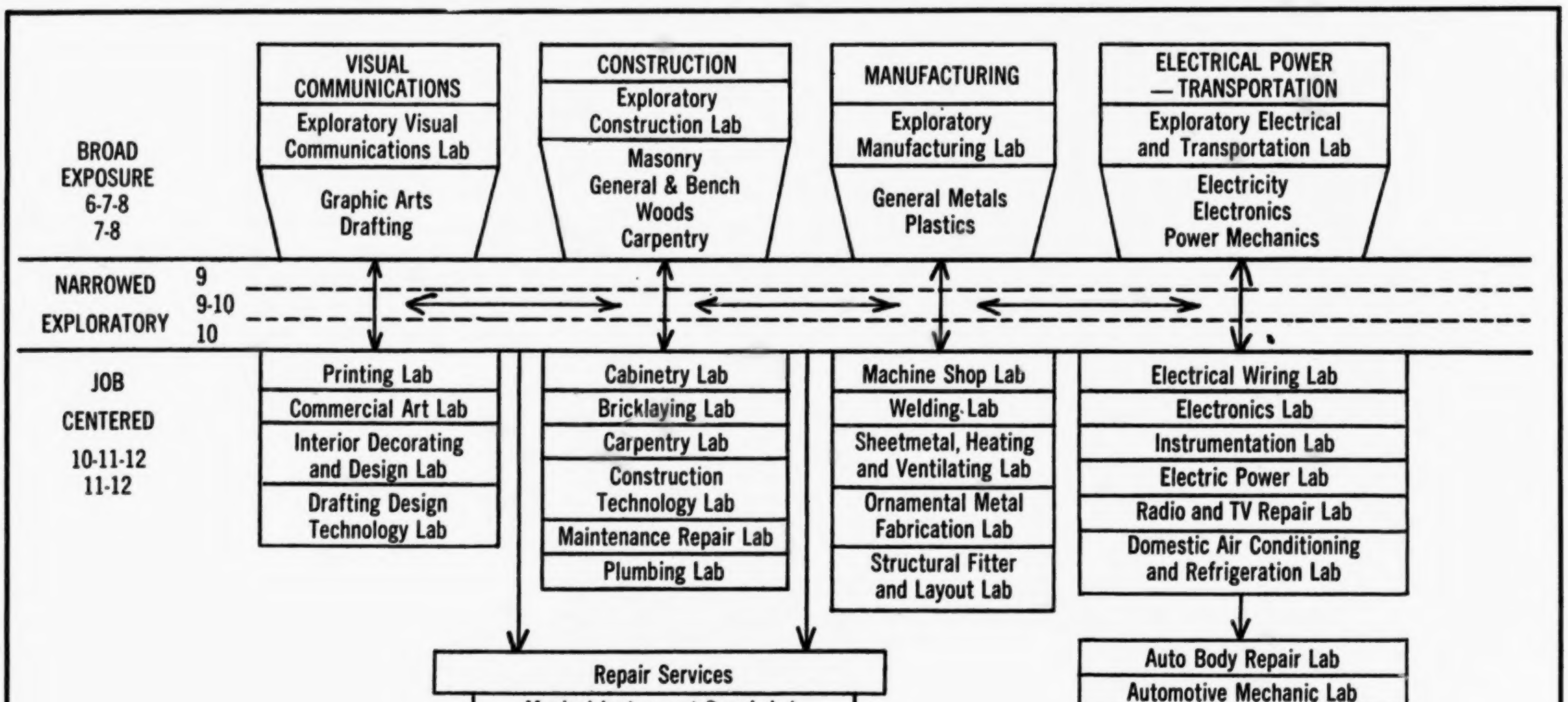
In order to improve the image of vocational education continuous re-evaluation, up-grading, revision and expansion of the program, and improved communication with the community will be necessary. Representation from all phases of the community must be involved in the planning of the vocational education programs. This will require considerably increased time on the part of the staff - from the teacher to the chief administrator. With the existing work loads of the staff, additional staff should be provided with these assignments as their prime responsibilities.

From observation and available evidence, the vocational administration in Pittsburgh has been sensitive to the need for functional operating relations with the community, and in some areas has established leadership with the business-industrial community. A more systematic approach to this whole problem will assist in the improvement of the image.

TABLE 123
TECHNICAL COURSES NEEDED BY INDUSTRY

	Civil Construction	Mechanical Design	Electronics	Instrumentation	Graphic Arts	Precision Machine	Chemical Technology	Metals Joining	Nuclear Technology	Hospital Technologies	Automotive-Locomotive Tech.	Fluid Power	Data Processing	Research Laboratory Technology
Construction	X	X						X	X		X	X	X	X
Printing - Graphic Arts					X								X	X
Chemicals - Petroleum			X	X	X		X		X				X	X
Glass - Refractories				X			X						X	X
Primary Metals		X	X	X			X	X	X			X	X	X
Fabricated Products		X				X		X	X				X	X
Electrical Electronic Equip		X	X	X		X							X	X
Nuclear		X	X	X		X	X	X	X				X	X
Transportation Equip.		X	X			X		X			X	X	X	X
Instrumentation & Control		X	X	X		X							X	X
Transportation - Utilities	X	X		X				X			X	X	X	X
Medical - Health			X	X						X			X	X

TABLE 124
EXPLORATORY & TRADE & INDUSTRIAL EDUCATION OFFERINGS IN OVT


BROAD EXPOSURE 6-7-8 7-8
NARROWED EXPLORATORY
9
9-10
10
JOB CENTERED 10-11-12 11-12
VISUAL COMMUNICATIONS
Exploratory Visual Communications Lab
Graphic Arts
Drafting
CONSTRUCTION
Exploratory Construction Lab
Masonry
General & Bench Woods
Carpentry
MANUFACTURING
Exploratory Manufacturing Lab
General Metals
Plastics
ELECTRICAL POWER — TRANSPORTATION
Exploratory Electrical and Transportation Lab
Electricity
Electronics
Power Mechanics
Printing Lab
Commercial Art Lab
Interior Decorating and Design Lab
Drafting Design Technology Lab
Cabinetry Lab
Bricklaying Lab
Carpentry Lab
Construction Technology Lab
Maintenance Repair Lab
Plumbing Lab
Machine Shop Lab
Welding Lab
Sheetmetal, Heating and Ventilating Lab
Ornamental Metal Fabrication Lab
Structural Fitter and Layout Lab
Electrical Wiring Lab
Electronics Lab
Instrumentation Lab
Electric Power Lab
Radio and TV Repair Lab
Domestic Air Conditioning and Refrigeration Lab
Repair Services
Musical Instrument Repair Lab
Office Machines Repair Lab
Upholstery Repair Lab
Shoe Repair Lab
Appliance Repair Lab
Sewing Machine Repair Lab
Auto Body Repair Lab
Automotive Mechanic Lab
Small Gas Engine Repair Lab
Service Station Manager Lab

VOCATIONAL EDUCATION IN PHILADELPHIA - ADMINISTRATIVE ORGANIZATION

Unlike the arrangement found in Pittsburgh the Director of Vocational Education in Philadelphia is a staff officer and has no in-line authority. Principals report directly to the district superintendents, which is not "the superintendent" of Philadelphia.

Matters of curriculum, equipment, etc. are handled in very close cooperation through the office of the director of vocational education. Questions concerning administrative factors must be reported directly to the District Superintendent and by him through the hierarchy to the Superintendent. The Director of Vocational Education is involved in most of these concerns in the area of vocational-technical high schools but has no authoritative status in the line of operations.

The comprehensive high school operations are not entirely under the Director of Vocational Education. Suggestions of course offerings, work with department heads and teachers and the provision of plans for shop layouts and equipment, tools, supplies, etc. are his "staff" responsibility. The matter of scheduled time, both for students and teachers, the selection of students to go into these programs, is beyond the authority and the responsibility of the Director of Vocational Education. The principal is more or less autonomous under the directions of the District Superintendent in these matters. They work out the solutions, problems and the implementation of programs in the individual schools and for the city as a whole. Vice-Principals and Department Heads are also line administrative officers within the school organization. Their direct responsibility is to the principal of the school who is administratively responsible to the district superintendent.

Chart 14 , "A Suggested Organization For an Effective Program for Vocational Education" is attached. This chart shows the recommended status of the chief vocational administrative officer and the supervisory staff organization for the activities of the vocational and practical arts programs.

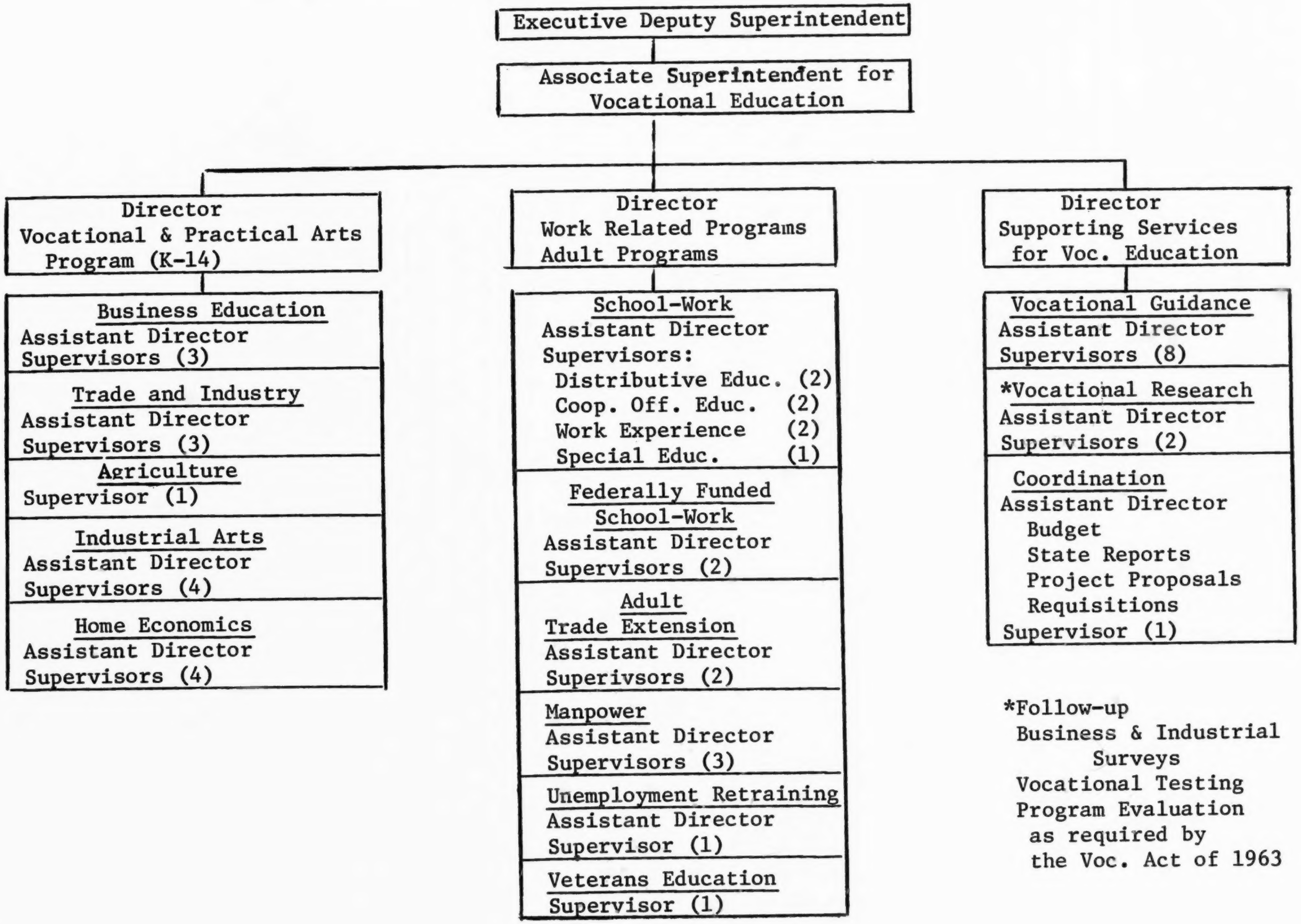
In addition to the in-line authority that is needed, the vocational education supporting staff appears to be maintained at a low level. A personnel cutback of 30 percent in the Spring of 1968 resulted in supervision capability deficiencies.

RELATIONSHIP TO THE SUBJECT AREA SUPERVISORS OF THE SECONDARY SCHOOLS

The vocational director in the present arrangement has no direct relationship to "the academic" subject area supervisors of the secondary schools, although there is communication with them through a long line of control. Since a total vocational education program is concerned with the academic subjects as well as the shop-laboratory subjects, there should be a definite workable relationship with the supervisory personnel in these areas. These supervisors are operating in the area vocational-technical high schools under the line of authority of the school principal and the

CHART 14

A SUGGESTED ORGANIZATION FOR AN EFFECTIVE PROGRAM OF VOCATIONAL EDUCATION


Executive Deputy Superintendent
Associate Superintendent for Vocational Education
Director
Vocational & Practical Arts Program (K-14)
Business Education
Assistant Director
Supervisors (3)
Trade and Industry
Assistant Director
Supervisors (3)
Agriculture
Supervisor (1)
Industrial Arts
Assistant Director
Supervisors (4)
Home Economics
Assistant Director
Supervisors (4)
Director
Work Related Programs
Adult Programs
School-Work
Assistant Director
Supervisors:
Distributive Educ. (2)
Coop. Off. Educ. (2)
Work Experience (2)
Special Educ. (1)
Federally Funded School-Work
Assistant Director
Supervisors (2)
Adult
Trade Extension
Assistant Director
Superivsors (2)
Manpower
Assistant Director
Supervisors (3)
Unemployment Retraining
Assistant Director
Supervisor (1)
Veterans Education
Supervisor (1)
Director
Supporting Services for Voc. Education
Vocational Guidance
Assistant Director
Supervisors (8)
*Vocational Research
Assistant Director
Supervisors (2)
Coordination
Assistant Director
Budget
State Reports
Project Proposals
Requisitions
Supervisor (1)

*Follow-up
Business & Industrial Surveys
Vocational Testing
Program Evaluation
as required by the Voc. Act of 1963

district superintendent. A closer relationship would keep academic educators abreast of needs and developments in the vocational program and vice versa.

BUDGET DETERMINATION AND CONTROL

The financial support of the vocational education program of a school system is the responsibility of the board of school commissioners through the chief school administrator. The chief vocational education administrator is in a good position to determine the financial needs of the program and for structuring the budget for the program. The availability of State and Federal funds for the support of vocational education programs is constantly monitored by the chief vocational education administrator as a part of his daily tasks. He accounts to the State director of vocational education for certification of the proper use of these funds. Unfortunately, the role of the vocational education director in Philadelphia is to advise during the budget construction phase, but does not include the determination of what is to be cut or retained.

PROGRAM OFFERINGS - PHILADELPHIA

The day school vocational education program provides preparation for jobs ranging from very low skill to high skill, including technician levels. There are approximately sixty-six course offerings, many of which are offered on several skill levels and quite specific job areas. The course offerings cover reasonably well the basic occupations and are typical of the traditional vocational courses. The courses of study have been revised and up-dated in most instances but there is a need for broadening into clusters of occupations to provide versatility in meeting future occupational requirements. However, there is still the need to provide sufficient job entry skills.

Philadelphia has maintained four specialized vocational-technical high schools and has increased vocational education offerings in the comprehensive high schools (16 of 18 schools.) The city schools have also provided "shared time" in vocational shop laboratories for parochial school students. See Table 125.

TABLE 125

VOCATIONAL-TECHNICAL PROGRAMS IN THE AREA VOCATIONAL-TECHNICAL HIGH SCHOOL AND THE COMPREHENSIVE HIGH SCHOOL IN PHILADELPHIA, PENNSYLVANIA (1967-1968)

Total Number of High Schools	22
Number of Comprehensive High Schools	18
Number of Area Vocational-Technical High Schools	4
Number of Comprehensive High Schools Offering Business Education but no Occupational or Trade Preparatory Programs	3
Number of Comprehensive High Schools Offering Business Education, Occupational and Trade Preparatory Programs	13
Number of Comprehensive High Schools Offering no Vocational Programs	2

Number of Different Vocational Courses:

	BE&DE	Voc.H.E.	T&I Ed.
Comprehensive High Schools	18	2	21
Area Vocational-Technical Schools	22	2	59
Special Education Schools	2	-	25

A breakdown of the enrollments in the various programs is compiled in Table 126 .

TABLE 126

PHILADELPHIA PUBLIC SCHOOLS

	Grades	High School		Post High School		Totals	% of
Curriculum	10	11	12	13	14	10-14	Grand Total*
1963-64							
Academic	6,188	8,204	4,566			18,958	32.5
General	3,966	4,640	2,605			11,211	19.2
Business	7,485	7,698	2,812	3		17,998	30.8
Vocational	4,873	3,398	1,367	262		9,900	17.0
Occ.Tr.Prog.	115	163	38			316	.5
Totals	22,627	24,103	11,388	443		*58,383	100.0
1964-65							
Academic	6,886	5,046	6,950			18,882	32.3
General	3,777	3,887	4,604			12,268	21.0
Business	6,820	5,626	4,114	52		16,612	28.4
Vocational	4,522	2,930	2,270	391		10,113	17.3
Occ.Tr.Prog.	276	307	49			632	1.0
Totals	22,281	17,796	17,987	443		*58,507	100.0
1965-66							
Academic	6,510	5,349	4,713			16,572	30.4
General	3,772	3,691	3,926			11,389	20.9
Business	7,301	5,442	3,371	87	28	16,229	29.8
Vocational	4,392	2,902	1,744	382	154	9,574	17.6
Occ.Tr.Prog.	316	254	172			742	1.3
Totals	22,291	17,638	13,926	469	182	*54,506	100.0
1966-67							
Academic	7,372	5,831	4,843			18,046	32.6
General	3,580	3,762	3,595			10,937	19.7
Business	6,737	5,463	3,177	91	26	15,494	28.0
Vocational	4,732	2,738	1,738	426	169	9,803	17.7
Occ.Tr.Prog.	464	336	278			1,078	2.0
Totals	22,885	18,130	13,631	517	195	*55,358	100.0
1967-68							
Academic	7,607	6,201	4,994			18,802	33.3
General	3,829	3,768	3,984			11,581	20.6
Business	6,855	5,008	3,232	109	19	15,223	26.9
Vocational	4,574	2,636	1,640	512	144	9,506	16.8
Occ.Tr.Prog.	400	378	581			1,359	2.4
Totals	23,265	17,991	14,431	621	163	*56,471	100.0

VOCATIONAL-TECHNICAL EDUCATION ENROLLMENTS IN PHILADELPHIA

The enrollments in the day school vocational education programs, exclusive of Business Education, in the area vocational-technical, comprehensive high schools and special education schools and classes, have been relatively static over the past five years in relationship to the total enrollment in Grades ten through 14. The average percentage of the total vocational enrollment to the total enrollment in Grades ten through 14 for this period was 17.2% with negligible change from year to year.

Business education averaged 28.8% of the total enrollment (grades ten through 14), with slight change from year to year but with a continuous decrease in enrollment from 1963-64 through 1967-68. The difference between the enrollment of 1964-65 and 1965-66 was a decrease of 383. However, the total enrollment for all curricula (10-14) for the period dropped 6.8% thus increasing the business education percentage of enrollment to total enrollment from 28.4% in 1964-65 to 29.8% in 1965-66.

Occupational training class enrollment showed a continuous increase from .5% to 2.4% of the total enrollment (grade 10-14). Although the enrollment has approximately tripled from 1963-64 through 1967-68, the total in 1967-68 of 1,359 is a small percentage of this segment of the school population.

The enrollment in the general curriculum for this period has averaged 20.3% of the total enrollment (grades 10-14). This enrollment has been relatively stable. There were exceptions to this trend. A maximum gain in 1964-65 of 1.8% in relationship to a total enrollment gain of only 0.2% and a maximum loss in 1966-67 of 1.2% in relationship to a total enrollment gain of 1.5%.

During this period the academic curriculum enrollment is consistently the largest percentage of the total enrollment (10-14). The average for this curriculum is 32.2%. An analysis of these enrollments by curriculum indicate that of the total population of Grade 10 through 14:

32.2% are enrolled in college preparatory programs.

47.5% are enrolled in some type of job preparatory program.

20.3% are enrolled in the general curriculum not classified

as either college preparatory or job preparatory.

AREA VOCATIONAL-TECHNICAL HIGH SCHOOL ENROLLMENT TRENDS

The total enrollment in all of the day school vocational programs in the area vocational-technical high schools has shown a slight gradual decrease from 1963 through 1967. The percentage of these enrollments of the total high school enrollment (grade 10-12) range from 9.97% in 1963 to 9.36% in 1967 with an average for this five year period of 9.6%. The actual enrollment figures can be found in Table 127.

VOCATIONAL AND BUSINESS EDUCATION ENROLLMENTS IN THE COMPREHENSIVE HIGH SCHOOL

The total enrollments in the occupational and trade preparatory programs in thirteen comprehensive high schools represented 15.5% of the total enrollment of the 18 comprehensive high schools (10-12). This was slightly more than double the total enrollments (exclusive of business education) in the area vocational-technical schools for the school year 1965-66. For the school year 1966-67 it was approximately two and one-half times that of the area vocational-technical high school enrollments.

The total enrollments in the business education programs in sixteen comprehensive high schools represented 24.2% of the total enrollment of the 18 comprehensive high schools (10-12). Compared to the business education programs in the area vocational-technical high schools, these comprehensive high school enrollments were slightly more than 12 times that of the area vocational-technical high school business education enrollment in 1965-66; and for 1966-67, approximately 10 times (9.8) that of the area vocational-technical high school enrollment.

POST HIGH SCHOOL PROGRAM ENROLLMENTS

There was an increase of 515 students in the post high school (13th & 14th grades) technical program enrollments in one of the area vocational-technical high schools. The annual output of these programs, approximately 300 graduates, is insignificant in view of the vast potential technician job opportunities in the Philadelphia Labor Market Area.

TABLE 127

TOTAL ENROLLMENTS IN THE DAY SCHOOL PROGRAMS IN THE THREE AREA VOCATIONAL-TECHNICAL SCHOOLS FOR THE YEARS 1963 THROUGH 1968

Day School Programs	Total Enrollment as of February 1963	1964	1965	1966	1967	1968
Bok Vocational-Technical High School	1,632	1,729	1,609	1,508	1,410	1,353
Dobbins Vocational-Technical High School	1,982	2,036	1,996	1,977	1,879	1,899
Mastbaum Vocational-Technical High School	1,378	1,351	1,312	1,417	1,454	1,417
Grand Total per year	4,992	5,116	4,917	4,902	4,743	4,669
Total High School Enrollment (10-14)	50,068	53,481	53,119	50,444	50,674	N.A.
Percentage of Area Vocational-Technical to Total High School	9.97	9.57	9.37	9.72	9.36	--

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Data from Area Vocational-Technical Schools as of February for years 1963-1965 and 1968. For 1966 and 1967 from February Monthly Statistical Reports.

SCHOOL-WORK PROGRAMS

The following programs have operated successfully and have expanded but still serve a very small percentage of the eligible student population:

- Cooperative Office Occupations
  Community Education Programs

- Cooperative Technical Occupations
  Skilled, Trade and Technical Programs

- Distributive Occupations
  Distributive Education Programs

- Diversified Occupations
  Work Experience Programs

IMPROVING HOLDING POWER

A study was made of the entering 10th grade classes, in the three area vocational-technical high schools, through three years to graduation. The total 10th grade enrollment (1965) in the three schools was 1,758 and the total number of graduates (1968) was 964 or a "holding power" of approximately 55 percent. Comparable data are not available at present for the vocational education programs in the comprehensive high school. Apparently this "holding power" is low but there is some evidence that a number of the withdrawals went directly into jobs. There is no follow-up on these cases and no reliable estimate can be made. However, not all of these withdrawals were lost to the labor market; it can be assumed that they received some saleable skills and entered the world of work. Success in job placement of graduates of the skilled trades and technician programs in the area vocational-technical schools is reasonably high.

The average loss in gross enrollment per year for the three years is 14.6 percent for the area vocational-technical high schools and 16.5 percent for the comprehensive high schools. In order to produce a given number of graduates per year at the above calculated enrollment losses, it would be necessary to increase the tenth grade enrollment by approximately 45 percent in the area vocational-technical high schools and by approximately 40 percent in the comprehensive high schools.

As stated previously, although not all of the withdrawal cases are lost to the labor market (or to higher education) experience indicates that a majority of the "Over Compulsory Age" withdrawals do not enter the labor market upon leaving school. These individuals will continue among the unemployed indefinitely or, for a segment, until such time that they may re-enter job preparatory programs in the Manpower Program - outside of the public high school programs.

A capsulized view of the staffing in the Philadelphia schools is shown in Table 128. Trends and areas of emphasis can be determined from the pupil-teacher ratio. The academic statistics are presented for comparison.

TABLE 128

NUMBER OF POSITIONS PER SCHOOL YEAR
1963 THROUGH 1967 (AS OF JUNE 30)

	Comprehensive High Schools					Vocational-Technical High Schools				
Position	1963	1964	1965	1966	1967	1963	1964	1965	1966	1967
Principals	19	19	19	18	18	3	3	3	4	4
Vice Principals	29	34	35	36	36	6	6	6	6	6
Teachers	1,994	2,134	2,252	2,235	2,370	250	267	287	314	337
Home Ec.	47	50	52	51	53	---	---	---	---	---
Ind. Arts	86	87	70	72	76	---	---	---	---	---
T.F. & T.I.	126	134	152	159	173	84	89	92	90	93
Bus. Ed.	303	338	356	347	365	33	36	41	45	49
Others	171	179	193	257	325	46	48	47	62	80
Cler./Sect.	105	112	120	115	123	19	19	18	20	24
Total	2,318	2,478	2,619	2,661	2,872	324	343	361	406	451
No. of Schools	19	19	19	18	18	3	3	3	4	4
Total Enrollment	47,112	50,196	50,093	47,302	48,320	5,237	5,381	5,100	5,151	4,917
Pupil-Total Staff Ratio	20.3:1	20.3:1	19.1:1	17.8:1	16.8:1	16.2:1	15.2:1	14.1:1	12.7:1	10.9:1

*Data from Statistical Report, Dept. of Instruction, School District of Phialdelphia, Board of Public Education. School Years 1963-64, 1964-65, 1965-66, 1966-67 and 1967-68.

EXISTING IMAGE OF VOCATIONAL EDUCATION

The Vocational Education Division in Philadelphia, as in most big cities, has increased its effort to extend and improve the image of vocational education throughout the community. The effectiveness of these efforts vary. Management, labor and lay groups who have been in close contact with a vocational program in a school or schools generally are complimentary. Those groups who have not had direct contact with the program, or some phase of it, are quick to question the need for or effectiveness of the program.

In order to improve the image of vocational education, continuous re-evaluation, up-grading, revision and expansion of the program will be necessary. With the existing work loads of the staff, additional staff should be provided with these assignments as their prime responsibilities.

The vocational administration of Philadelphia has made genuine efforts to improve the image, but on a piecemeal basis. A more systematic approach to the whole problem will assist in the improvement of the image.

THE GREAT CITIES POSITION ON OCCUPATIONAL EDUCATION

General principles and critical issues in occupational education were identified in a position statement in 1968 by the Research Council of the Great Council of the Great Cities Program for School Improvement. Since the preparation of the position paper involved the vocational education administrative leadership of the sixteen largest cities including Philadelphia and Pittsburgh in the United States, it was deemed to be quite important to include their findings in this report in behalf of expanded and improved vocational and technical education in large cities.

GENERAL PRINCIPLES

The challenge to provide relevant, broad, and improved programs for preparing youth and adults for the world of work is urgent in the Great Cities of our nation. As school districts begin to structure, develop and implement appropriate programs, the following general principles should guide their efforts:

1. Programs of occupational education must be an integral part of the educational process; they must be embraced in the total program of education. For many individuals, occupational education can serve as a motivational force for developing academic skills as well as desirable personal and social attitudes.

2. Occupational education must be sufficiently broad and varied in scope and be offered at all levels of career preparation to meet the needs of all youth.

3. Occupational education must develop from a broad base in the early years to more specialized programs in later years as individual interests and needs are identified.

4. Occupational education must provide opportunities for continuing programs beyond the secondary school level to encourage upward social and economic mobility and to provide motivation for adequate career development.

5. Organization of programs of occupational education in the school system must be determined by its effectiveness in realistically serving the individual needs of the students enrolled.

6. Community involvement should be encouraged to promote understanding and support of the entire educational enterprise and to assure that programs are timely and relevant.

CRITICAL ISSUES

The following critical issues must be resolved:

1. The distribution of federal and state assistance must be achieved in a manner to meet the special needs of large cities for occupational education.

2. Costly duplication and fragmentation of services should be avoided.

3. Effective occupational programs to serve all youth and adults must be strengthened.

4. Urban school districts should be assured greater participation in the development of state plans for occupational education.

5. More occupationally oriented education should be provided at earlier ages.

6. More research and development in curriculum and instructional methods must be provided.

7. Cooperative relationships should be strengthened among colleges, universities, research agencies and school districts for the improvement of significant aspects of occupational education.

8. Occupational information and guidance services must be extended and improved.

9. An adequate level of financial support is required to expand occupational education opportunities and to up-grade the quality of programs.

PROGRAM DEVELOPMENT

The Great Cities Research Council also developed a broad plan of action for program development in an effort to resolve the critical issues through a cohesive, unified, approach. Some excerpts from the statements of the program of action are as follows:

- The Research Council will plan and coordinate a program of action, research and innovation in the area of occupational education.
- The Research Council believes that high priority should be given to the development of occupational programs for youth and adults with special needs. In light of current national interest in job training and the economic problems of minority groups, we must engage in immediate and extensive program development to meet these needs.
- Another high priority should be assigned to the development of projects relating to cooperative involvement of the community. Industry, business, labor, and community agencies or groups representing grass roots interests must be involved in programs of occupational education. School districts should not abdicate their responsibility in the area of occupational education since they have the expertise and facilities for this purpose. Nevertheless, a means must be found for involving community groups in the planning and development of occupational education programs. While considerable progress has been made in cooperative programs with business, industry, and labor, a major challenge exists in the involvement of grass roots community groups.

CONCLUSIONS AND RECOMMENDATIONS

The Big Cities have had on-going vocational education programs on multiability levels which have provided opportunities for youth with special needs, the "average" and the vocationally talented. Continuation of many of these programs is just as important as new programs or innovations. The on-going programs have not been static as often claimed in criticisms, most of them have been extended, up-graded and changed to meet the changing needs of the student, business and industry. Innovations are occurring and need to be accelerated to service all youth and adults with vocational-technical education needs. Encouragement by the State of new programs, innovations, and development of broad coverage in the comprehensive high school is essential and should be financially assisted.

As in many other large cities of the nation, it was extremely difficult to obtain vocational education program statistical and financial data that was related to the vast and complex educational problems and to the socioeconomic needs of their population, young and older. From the information that was accessible, it was obvious that the contribution of the

Philadephia vocational education program to the extensive labor force demands was not very substantial. Even after the Vocational Education Act of 1963 was passed and funded, the enrollments in the Philadelphia program grew very little. The lack of expansion of the program seemed to have been due largely to an inability of the city school board and the administration to develop and agree upon a basic philosophy of vocational education and the essential policies and procedures to implement the number and kinds of programs that would best serve the youth and adults of the city.

Another serious problem was observed in the history of inadequate communication between the school district and the Bureau of Vocational, and Continuing Education in Harrisburg about serious vocational education programs and problems in the city. No joint organized planning efforts, short or long term were evidenced.

Recently, however, encouraging steps have been taken to expand the vocational education program both in the number of participating schools as well as in a greater number and variety of occupational offerings. New shops and rehabilitation of equipment will be a part of the capital program. Also, steps are being taken to re-examine the organization of vocational education in Philadelphia.

The vocational education program in Pittsburgh made great strides in serving many more youths in high school as a result of adoption and implementation of the occupational, vocational and technical education (OVT) concept. Although there were differences of opinion particularly among vocational educators, OVT in its complete operation is an excellent device to make secondary education more relevant to many student needs. Much of the excellent program development was due to the city school organization of vocational education which provided for quality leadership at a high administrative level.

Communication between the Pittsburgh School District and the Bureau of Vocational, Technical, and Continuing Education was much improved over the last five years but there are still gaps which could be filled by some reorganization of field service out of the State office.

RECOMMENDATIONS. It is recommended that vocational education field offices with qualified staff be established by the Bureau of Vocational, Technical, and Continuing Education in the cities of Philadelphia and Pittsburgh to provide for direct and continuous program communication and service. This seems altogether appropriate and necessary because a large bulk of the Pennsylvania population and the work force are located in the two large cities.

It is recommended that the following needs should be met in the Philadelphia program:

1. An increased central office staff to assist in administering and supervising the city's extensive and complex program and problems.

2. More adequate local and State financial and professional help in services and activities such as, curriculum development, and revision, program evaluation, staff leadership development and in-service teacher training.

3. Greater support for innovative and exemplary programs, particularly to expand and improve the program services for the many socioeconomic disadvantaged youth and adults of the city.

It is recommended that both cities, in cooperation with the State office, set up evaluation criteria and procedures to assist in meeting the new evaluation requirements of P.L. 90-576 and the new State Advisory Council.

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SECTION VI--SPECIAL STUDIES

CHAPTER XIII

SPECIAL SOCIOECONOMIC NEEDS

The poor, the needy, and the huddled masses of humanity afflicted with diverse handicaps have long been the concern of America. In spite of the concern, pockets of poverty abound in our affluent society. Continuing unemployment in the urban and rural sectors of the United States is cause for alarm as rising costs of living put increased strain upon the limited resources available to the unemployed and underemployed.

Departments of the Federal government, alerted to the serious nature of human problems, have attempted in a variety of ways to bring relief to the people involved. Little agreement has been reached on the best and most efficient way to provide assistance. The key is to remember that any program must emphasize its dual aspects--to render immediate service by providing jobs and realistic job training opportunities while looking toward the long term benefits accruing to program participants through the slower process of education.

A mandate to serve the socioeconomically disadvantaged was given to vocational education when congress enacted the Vocational Education Act of 1963. Barbara H. Kemp, program specialist with the United States Office of Education, indicated that damage to the reputation of vocational educators comes from the fact that they have not been doing their part in the education of all persons who could benefit from vocational education. The identity and location of persons in need of such instruction is often obscured by the biases of individuals empowered with the responsibility to develop, organize, and administer suitable programs.

It seems fruitless to haggle about a suitable definition of the socioeconomically disadvantaged that everyone will accept when there is urgency to help so many people. Special needs programs should provide appropriate relevant occupational instruction for persons who are educationally deficient, physically handicapped, genetically mentally retarded or brain damaged, emotionally or psychologically disturbed, slow learners, and those from low income areas. Poverty knows no race. Over 50 percent of this country's poor live in rural areas. At the same time negro unemployment is double that of whites.

ECONOMIC ASPECTS OF POVERTY IN PENNSYLVANIA

The Federal Social Security Administration defines poverty generally as an annual income less than $3335 for a non-farm household of four persons. The poverty level for a farm household of four persons is 70 percent of that figure. The income level is adjusted for larger or smaller households.

The 1966 figure for poor families in the United States represented a significant improvement over 1960, the ratio of poor families to total families in the country falling from 18.9 percent to 13.4 percent during the period. This reduction in poor families by 30 percent was hardly touched in Pennsylvania, where a mere four percent of poor families made an exit from poverty during 1960-66. The number of poor families in Pennsylvania (OEO county profiles) dropped from 13.9 percent in 1960 to only 13.4 percent in 1966, amounting to a mere 5,000 families.

The reasons for this scant decline of poverty in the face of the national improvement lie importantly in Pennsylvania's economic structure--and the resulting effects on employment. Unemployment of a chronic nature has typified Pennsylvania's economy, with a state-wide unemployment rate that averaged 7.2 percent during the 15-year period 1950-64. During the same period the national rate of unemployment averaged 4.9 percent. Pennsylvania's unemployment rate was nearly 50 percent higher than the national average until 1964, although both rates, Pennsylvania's and the United States', converged to a level of less than four percent after 1964. More detailed analysis of the Pennsylvania economy was discussed in Chapter IV.

UNEMPLOYMENT AND POVERTY

It is understandable that the rate of unemployment during 1950-64 would have been high in Pennsylvania given the difficulties of economic structure and the national deficiency of aggregate demand. Even after the level of aggregate demand improved in the sixties and the overall rate of unemployment receded in Pennsylvania--dropping from 4.4 percent in 1965 to 3.4 percent in 1966 and 1967, and down further to 3.2 percent in 1968--the rate of exit out of poverty did not undergo any material change (data of 1966). This seeming paradox, the stationariness of poverty despite a lower rate of unemployment, is due to the use of the global average in the traditional measure of unemployment. In recent years, despite a low state-wide average rate of unemployment, substantial segments of Pennsylvania's population suffered recession rates of unemployment. In early 1968, when Pennsylvania's average rate of unemployment was a modest 3.4 percent, 27 out of Pennsylvania's 67 counties (or 40 percent of the counties) had unemployment rates greater than five percent while 17 counties had unemployment rates that were greater than 6.5 percent.

Geographically, the high unemployment rates were extensively scattered throughout Appalachia Pennsylvania. The counties to which they applied had a labor force count in 1963 of about 700,000 persons, or 16 percent of the state's total labor force of 4,400,000 persons.

From the point of view of areas in Pennsylvania which contain the largest number of reported unemployed, as contrasted with areas in Appalachia Pennsylvania which have the highest _rates_ of unemployed, the large urban places of the state account for the bulk of the reported unemployed. When the unemployment rate for the state had fallen to 2.7 percent last October, the total number of reported unemployed was 131,000 persons. Of this total 60 percent, or 79,000 persons, resided in the Pittsburgh and Philadelphia labor market areas. Another 25 percent, or 32,500 persons, were located in Pennsylvania's ten major labor market areas (an average of 3,250 persons per area).

Special pockets of employment adversity not appearing in the county-by-county data have been uncovered by ad hoc household survey techniques. A Department of Labor survey of the slum area of North Philadelphia, made at a time in 1966 when the reported rate of unemployment in the United States was 3.7 percent, and was only 2.8 percent for the metropolitan area of Philadelphia, turned up an unemployment rate of 11 percent. The population of the slum was nearly 100,000, and the percentage of non-white population in the area, virtually all of them Negroes, was 89 percent. (Of the total Negro population of one million in Pennsylvania in 1966, more than 60 percent resided in Philadelphia county and another 15 percent in Allegheny county.) The Department of Labor survey showed that the unemployment rate for teenagers was 27 percent.

The traditional measure of unemployment--even when the statistics are considered at the county level and account is taken of special pockets of unemployment--does not serve to encompass even roughly the numbers of people living in poverty. If all the reported 1966 unemployed of 163,000 persons in Pennsylvania were family heads, they would still not account for the number of families living in poverty. In Pennsylvania in 1966 the number of families in poverty was 2.6 times the number of reported unemployed. All families in poverty in 1966 numbered 419,000 out of a total of 3,000,000 families in the state.

To improve the count so there is a better match between people with employment-related problems and the numbers of people in poverty, the concept of subemployment is useful. Besides counting unemployment as traditionally measured, the concept covers other factors which pertain to jobs and income, mainly the special problems of underemployment, low-wage employment and labor force non-participation (those who give up hope of finding work in the age bracket 20 to 64). When these factors are taken into account--in respect to a few areas where an effort has been made to gather the statistics--the position of the individuals concerned is seen to be desperate. The Department of Labor survey of the slum area of North Philadelphia in 1966 showed a staggering rate of subemployment amounting to 34 percent in comparison with an unemployment rate of 11 percent in the slum. In terms of subemployment conditions one out of every three residents of the slum had a serious employment problem.

CONCENTRATIONS OF UNEMPLOYMENT AND POVERTY

The difficulty of making an exit out of poverty in Pennsylvania, measured by the experience of 1960-66, has been supported by material on Pennsylvania's economic structure, which has an adverse mix of industries and a decreasing share of employment growth in industry. In the circumstances, employment opportunities do not abound and those who stand last in the job queue tend to remain there. This is borne out by unemployment data in Pennsylvania covering the chronicity and excessiveness of unemployment (by national standards) and a distinction has been drawn between the very high rates of unemployment throughout Appalachia Pennsylvania and the aggregations of unemployment in the large urban labor markets. The distinction is one between high rates and small actual numbers of unemployed in certain areas (Appalachia) and low rates and large numbers of unemployed in other areas (urban labor market areas). The same distinction applies to the poverty families of Pennsylvania.

Data on poverty families in Pennsylvania show that poor families amounted to 13.9 percent of total families in 1966, which was slightly higher than the same ratio for the United States in 1966 (13.4 percent). However, the incidence of poor families was higher in the Appalachian part of Pennsylvania than in either Pennsylvania as a whole or in the United States. In Appalachia Pennsylvania poor families constituted 16.3 percent of that region's families. The ratio of 16.3 percent in Appalachia compares with 11.4 percent in the non-Appalachian part of Pennsylvania and indicates the rate of poverty was 43 percent higher in Appalachia than in non-Appalachia.

TABLE 129

FAMILY POVERTY IN 1966: PENNSYLVANIA

	(1) All Families	%	(2) Poor Families	%	Column (2) as a percent of Column (1)
Appalachia Pennsylvania	1,525,759	50.8	250,343	59.8	16.3
Non-Appalachia Pennsylvania	1,476,136	49.2	169,018	40.2	11.4
Total	3,001,895	100.0	419,361	100.0	13.9

At a level of Appalachia and non-Appalachia there is not much to choose from as between rates of poverty and concentrations of poverty. The poverty rate (ratio of poor families to total families) is 43 percent higher in Appalachia than in non-Appalachia, and the concentration of poverty (absolute numbers of poor families) is 50 percent higher in Appalachia than in non-Appalachia.

But when the level of geographic detail is reduced to counties, clear-cut differences emerge between rates of poverty and the distribution or concentration of poverty. The rate of poverty in 38 of Pennsylvania's 67 counties was relatively very high in 1966 as shown in Table . In eight counties the ratio of poor families to total families was 25 percent or more.

In 30 counties the ratio was between 17 and 25 percent. In short, 55 percent or 38 counties of Pennsylvania's counties had very high rates of poverty in 1966. (Of these, 36 counties were located in Appalachia Pennsylvania) On the other hand, these same 38 high-rate poverty counties contained only 35 percent of the State's poverty families (146,000 out of 419,000 poor families).

TABLE 130

POVERTY RATES 1966: RATIO OF POOR FAMILIES TO TOTAL FAMILIES

	Number of Counties	Poor Families	Poverty Rate: Range	Average Poverty Rate
(First tier)	8	25,816	25% or more	27.5
(Second tier)	30	120,047	17% to 24.9%	20.3
(Third tier)	26	247,696	10% to 16.9%	13.7
(Fourth tier)	3	25,802	Less than 10%	6.6
Total	67	419,361		

Looking at Pennsylvania poverty families in 1966 from the point of view of concentrations rather than rates, it turns out that two-thirds of the poverty families, or nearly 270,000 families, lived in 16 counties. Only four of these 16 counties--Cambria, Fayette, Lackawanna and Schuylkill--were in the high rate grouping of 38 counties (second tier) and all four of them were in Appalachia. All of the 16 counties had eight thousand or more poor families. This seems to be a convenient "break" point. The rest of the counties in the state fall below 6,800 and many are much below this. See Table 131

TABLE 131

PENNSYLVANIA COUNTIES WITH LARGEST NUMBER OF POVERTY FAMILIES 1966

		Families in Poverty	
County	All Families	Number	% of Total
Philadelphia (Non-Appalachia)	515,175	74,185	14.4
Allegheny (Appalachia)	422,199	47,708	11.3
Luzerne (Appalachia)	87,958	18,647	21.2
Westmoreland (Appalachia)	93,828	13,417	14.3
Lackawanna (Appalachia)	59,347	11,276	19.0
Fayette (Appalachia)	40,280	11,117	27.6
Delaware (Non-Appalachia)	153,277	10,576	6.9
Cambria (Appalachia)	49,836	11,064	22.2
Lancaster (Non-Appalachia)	76,714	9,589	12.5
Schuylkill (Appalachia)	43,803	9,374	21.4
Erie (Appalachia)	66,300	8,884	13.4
Berks (Non-Appalachia)	80,096	8,811	11.0
Washington (Appalachia)	56,629	8,777	15.5
York (Non-Appalachia)	68,836	8,604	12.5
Montgomery (Non-Appalachia)	150,637	8,436	5.6
Dauphin (Non-Appalachia)	59,860	8,141	13.6
Sub-Total	2,024,775	268,606	
All Other Counties	977,120	150,755	
GRAND TOTAL	3,001,895	419,361	13.9

The two counties with the largest number of poor families were Philadelphia County (which is coterminous with the city of Philadelphia) and Allegheny County (which includes Pittsburgh). Together these two counties accounted for 122,000 poor families or 30 percent of all poor families in the state. Philadelphia County alone had 74,000 poor families, or 18 percent of total poor families. Data on poor families in Allegheny County do not separate out the city of Pittsburgh, but if the number of poor families in the city of Pittsburgh is the same as the city-county population ratio (37 percent in 1960), poor families would number about 17,000 in the city. Between them, Philadelphia and Pittsburgh account for one-fifth of the poor families of Pennsylvania.

Of the other 14 counties with the remaining bulk of poor families, eight are scattered throughout Appalachia Pennsylvania (Cambria, Erie, Fayette, Lackawanna, Luzerne, Schuylkill, Washington, Westmoreland), and six counties are located in non-Appalachia Pennsylvania (Berks, Dauphin, Delaware, Lancaster, Montgomery, York). The numbers in poverty in these counties are much higher than elsewhere in Pennsylvania. The average number of poor families in the eight counties of Appalachia was 11,570 in 1966 and in the six counties of non-Appalachia the average number of poor families was 9,026.

In contrast, reverting to the 38 counties which are prominent for their high rates of poverty (the "unconcentrated" counties) eight of them with the highest poverty rates had a relatively low average number of poor families, amounting to 3,227 per county. In the next tier of high rate counties (30 of them) the average number of poor families was still only 3,784 per county.

HIGH RATES VS HIGH NUMBERS OF POVERTY

The demands of high rate poverty and the demands of high concentration poverty need resolution. If high poverty rates alone were compelling, interest and attention would focus on 38 counties of which 36 are in Appalachia and two in non-Appalachia. If, on the other hand, high concentration poverty alone were compelling, interest and attention would focus on 16 counties, nine of them in Appalachia and seven in non-Appalachia. In the first case, that of high poverty rates, such urban centers as Pittsburgh and Philadelphia would be ignored. In the second case, that of high concentrations, they would be given priority. Neither of these extremes offers a sufficient basis for determining priorities. What has to be added to an appropriate mixture of high rates and high concentrations are other characteristics of poverty, those that go beyond the income definition of poverty. Then it will be possible to consider the relative degree of seriousness of poverty in one place as compared to another.

The characteristics include the elements of subemployment--that is, from the locus of county poverty the characteristics would include the match of unemployment and poverty and the lowness of wages and, apart from these two aspects of subemployment, there are demographic characteristics. Weighing these characteristics, economic and demographic, in the context of the highest rates of poverty and the highest concentrations of poverty, will enable us to establish degrees of seriousness of poverty. In turn this will offer a basis for priorities in regard to the physical location of program effort and the allocation of program funds.

MATCH OF POVERTY AND UNEMPLOYMENT

It seems reasonable as a poverty base to add the first tier of high-rate poverty counties (8) to the 16 counties where the bulk of poverty families live. One of these (Fayette) is already in the 16-county grouping. The other seven, as in the case of Fayette, are above the 25 percent poverty rate. All are in Appalachia.

TABLE 132

EIGHT COUNTIES WITH HIGHEST RATES OF POVERTY IN PENNSYLVANIA

	Number of Poor Families	Percent of Total Families in County
Fulton (Appalachia)	816	30.5
Somerset (Appalachia)	5,535	28.6
Huntingdon (Appalachia)	2,738	28.3
Fayette (Appalachia)	11,117	27.6
Juniata (Appalachia)	1,137	27.1
Bedford (Appalachia)	2,965	26.2
Wyoming (Appalachia)	8,604	26.3
Sullivan (Appalachia)	387	25.8

Adding the seven high-rate counties shown above to the 16 counties having the bulk of poverty (in terms of family numbers) makes a total of 23 counties. Together these 23 counties contain 283,305 poor families out of a state-wide total of 419,000 families (68 percent of the total).

In like manner, a summation can be made of areas with high rates of unemployment and high concentrations of unemployment. The high numbers of unemployed in 1966 were to be found in 12 counties which had 74 percent of total unemployment (121,000 unemployed out of 163,000 unemployed in the state) and the high rates of unemployed, ranging from 6 to 7 percent, were to be found in 4 counties, of which one was in the 12-county high numbers group. To facilitate reference to the counties of significant unemployment in 1966, a listing of the counties concerned is provided below, together with a listing of counties with significant poverty, i.e., counties having high rates and high concentrations of poverty. Counties having both significant poverty and significant unemployment are "lined up" with dots (...).

TABLE 133

SIGNIFICANT POVERTY AND UNEMPLOYMENT COUNTIES IN PENNSYLVANIA

Significant Poverty (% equals high rate)	Significant Unemployment (# equals high number)
Non-Appalachia	
Philadelphia (#)	Philadelphia (#)
Dauphin (#)	Dauphin
Berks (#)	Cumberland (#)
Delaware (#)	Northampton (#)
Lancaster (#)	Lehigh (#)
Montgomery (#)	
York (#)	
Appalachia	
Allegheny (#)	Allegheny (#)
Fayette (#,%)	Fayette (%)
Lackawanna (#)	Lackawanna (#)
Cambria (#)	Cambria (#)
Luzerne (#)	Luzerne (#)
Schuylkill (%)	Schuylkill (%)
Somerset (%)	Somerset (#)
Bedford (%)	Bedford (%)
Wyoming (%)	Wyoming (%)
Erie (#)	Blair (#,%)
Washington (#)	Perry (#)
Westmoreland (#)	
Fulton (%)	
Huntington (%)	
Juniata (%)	
Sullivan (%)	

Of the 16 counties with significant unemployment, ten counties are the same as those with significant poverty--Dauphin, Bedford, Cambria, Somerset, Philadelphia, Allegheny, Lackawanna, Luzerne, Fayette, and Wyoming. If the balance of significant unemployment counties--five in number--Blair, Lehigh, Northampton, Perry, and Cumberland--are added to the 23 counties in the poverty base, the number of counties deserving priority attention in Pennsylvania would rise to 28.

SUBEMPLOYMENT AND POVERTY

The development of a satisfactory measure of subemployment has been hampered by the lack of adequate data on labor force non-participation and part-time employment such that at present the United States Department of Labor is confining the measure of subemployment only to a substandard employment-earnings situation--that is, workers unemployed 15 or more weeks during the year and those who made less than $3,000 for year-round full-time work.

The unemployment aspect of poverty in Pennsylvania has been discussed above, together with the geographical identification of unemployment and poverty. Data on substandard earnings would aid in assessing the criticality of poverty and its dimensions but the necessary data, including an adequate breakdown of low-wage occupations, are not available. Available data--all on a state-wide basis--include only occupations which are covered by the Unemployment Compensation Law. For the year 1967, a total of 214,861 employees in four occupations had earnings at or near the poverty level.

TABLE 134

WAGES AND EMPLOYMENT IN LOW-WAGE INDUSTRIES 1967: PENNSYLVANIA

	Employment	Percent of Covered Employment	Average Annual Wage
Average State Employment 1967	4,673,000	-----	-----
Covered State Employment 1967	3,266,000	100.0	-----
Retail Trade--Eating & Drinking Places	118,732	3.6	$2,309
Hotels, Rooming Houses, etc.	31,914	1.0	2,829
Motion Pictures	7,185	0.2	2,633
Amusement & Recreation Service	23,454	0.7	3,396
Nonprofit Organizations	33,576	1.0	3,012
Other	3,051,229	93.5	-----

The situation for farm workers in Pennsylvania is somewhat better than that of workers in Pennsylvania's low-wage urban industries (comparing farm and urban money wages alone, without regard to living costs). The average weekly farm wage without board or room was $67.50 per week in 1968, which was $3,500 per annum on the basis of a 52-week year. (In nearby New York and New Jersey the corresponding weekly figure was $79.00 and $75.75, respectively.) With an average as low as $67.50 per week in Pennsylvania it can be expected that a substantial number of workers would fall below the average, just as some would be above the average. From the point of view of poverty, the lowness of the average wage on Pennsylvania's farms indicates that pockets of poverty exist among the state's agricultural workers (numbering 85,000 in 1966).

DEMOGRAPHIC CHARACTERISTICS

Only scattered statistics are available on a county basis to illustrate the demographic disadvantages of poverty groups. One measure of educational attainment shows the extent of functional illiteracy, defined as applying to persons 25 years of age or more who have completed less than five years of school. The national average of functional illiteracy (the percentage of the total population which was functionally illiterate) was 8.4 percent in 1960. In Pennsylvania in 1960, 12 counties were above the national average and most of them were in the significant poverty-unemployment grouping.

One other statistic of importance indicates that of the nation's five largest cities, New York, Los Angeles, Chicago, Detroit and Philadelphia, Philadelphia had the highest rate of high school dropouts in 1963. The average of the five cities was 24 percent and the Philadelphia rate was 46.6 percent. Correspondingly, a Department of Labor survey of 12 slum areas in 1966, including North Philadelphia, showed the worst unemployment was among 14-19 year olds and the highest rate was in North Philadelphia, at a rate of 36 percent of the teenage population.

Looking at certain characteristics of all families and poor families in Pennsylvania for 1960, certain conclusions of a state-wide nature are readily evident, most prominently, that among certain groups there are substantial concentrations of poverty, as may be seen in the following table.

TABLE 135

SELECTED CHARACTERISTICS OF ALL FAMILIES AND POOR FAMILIES IN PENNSYLVANIA, 1969

Selected Characteristics	Number of Families (thousands)		Percent of Total	
	All Families	Poor Families	All Families	Poor Families
Total	2,903	488	100	100
Color of Family				
White	2,713	427	93	88
Non-White	190	61	7	12
Residence of Family				
Rural Farm	87	29	30	6
Rural Non-Farm	725	140	25	29
Urban	2,091	319	45	65
Sex of Head				
Male	2,614	362	90	74
Female	289	126	10	26
Age of Head				
Under 35 years	651	99	22	20
35-44 years	714	74	25	13
45-64 years	1,123	146	39	30
65 years and over	415	169	14	37
Earners in Family				
None	229	192	8	39
One	1,443	230	50	47
Two or More	1,231	66	42	14

Familes headed by persons 65 years of age and older represent 37 percent of poor families and they appear among the poor families 2.5 times as frequently as they appear among all families. The last two columns of the table show additional characteristics of families that appear more frequently among poor families than among all families; 5 times in the case of poor families with no earners. The table also shows, in regard to urban non-white poor families, that they appear more frequently amongst the poor than amongst all families, 1.5 times for urban families and 1.7 times for non-white families.

VOCATIONAL EDUCATION LEGISLATION FOR SPECIAL NEEDS

Federal legislation directing the use of vocational education funds to meet the needs of persons with academic, socioeconomic, and other handicaps appeared in 1963 with the passage of P.L. 88-210. In the language of Section 4(a) of the Vocational Education Act of 1963, a state's allotment under Section 3 may be used, in accordance with its approved State Plan, for any or all of the following purposes:

> (4) vocational education for persons who have academic, socioeconomic, or other handicaps that prevent them from succeeding in the regular vocation education program;

Amendments to the Vocation Education Act of 1963 enacted in 1968 as P.L. 90-576 further emphasized the necessity for attending to the needs of special groups of persons. Section 123 covering "State Plans" makes it clear that such plans must "set forth" in detail the policies and procedures for distributing funds to local educational agencies and for the uses of such funds that assure "(B) due consideration will be given to the relative vocational education needs of all population groups in all geographic areas and communities in the state, particularly persons with academic, socioeconomic, mental, and physical handicaps that prevent them from succeeding in regular vocational education programs."

Grants or contracts may be made to pay all or part of the cost of "establishing, operating, or evaluating exemplary programs or projects designed . . . to broaden occupational aspirations and opportunities for youths, with special emphasis given to youths who have academic, socioeconomic, or other handicaps" in a wide range of activities, both in and out of school.

At least 10 percent of each state's allotment of funds for general programs of vocational education are to be used only for "vocational education for handicapped persons who . . . cannot succeed in the regular vocational education program without special assistance or who require a modified vocational education program."

In addition to the general vocational education funds that may be used for persons with special needs, appropriations of $40,000,000 for each of the fiscal years ending June 30, 1969 and June 30, 1970 were authorized for the purposes of "vocational education for persons who have academic, socioeconomic, or other handicaps that prevent them from succeeding in the regular vocational education program." At least 15 percent of each state's funds in excess of its base allotment is to be used for the above described persons with special needs.

SPECIAL NEEDS PROGRAMS IN PENNSYLVANIA

Vocational programs to meet special needs are in evidence throughout the state. Estimated vocational education expenditures in

Pennsylvania for the fiscal year 1968 for persons with special needs were $997,134, of which $197,134 is Federal, $300,000 state, and $500,000 local funds. However, this represents less than one percent of the total vocational education expenditures for the same period.

Each of the occupational areas of vocational education has reported special programs designed to meet some needs of the differentially handicapped students. A 78 acre farm in West Philadelphia is the setting for an agricultural business program accommodating students with special needs. Improving the ability of handicapped youth to live as independent responsible adults through increasing their wage earning capacity is the goal of a home economics program to develop skills in interpersonal relationships. Institutional aides to serve in hospitals, nursing homes, child care centers, schools, and other service areas are being trained in food service, nursing, and homemaking skills in a growing number of districts.

Revisions of office education programs are making it possible for many handicapped and otherwise disadvantaged students to qualify for an increasing number of jobs in government and private industry. Cooperative and work-study programs for special needs students are providing not only occupational skill training, but the incentive to remain in school until completion of the secondary school program.

The interest of local business and industry leaders is being stimulated by vocational education programs that bring students on the job on a part time basis. This promotes greater cooperation between schools and the business community, and increases the likelihood that students with special needs will present themselves as employees with special skills when they have completed their training programs.

CONCLUSIONS AND RECOMMENDATIONS

Pennsylvania's special needs problem is increasing daily. An average of 25,000 youths are leaving school before graduation each year. Of the 35,000 yearly cases of juvenile crime and delinquency in the juvenile courts, 85.3 percent are contributed by youth from urban areas, the inner city, the ghettos. Unemployment among teenagers is unusually high and sets the stage for even greater problems of unemployment and underemployment in the next decade.

The job situation is especially critical in view of the projected manpower needs, which indicate that skilled workers and technicians are in short supply. With appropriate orientation to job training and occupational competency, many of the dissatisfied youth in the state could be kept off future relief roles. But educational programs with any chance for success must include immediate job opportunities in order to retain students for the eventual long term benefits. The economic logic of poverty and unemployment in Pennsylvania suggests that priority attention should be given to 28 counties in the state.

Additional data indicate priority attention could be directed to special problem areas: the very high dropout rate in the high schools of Philadelphia; the very high number of non-earners in poverty families; and the urgent problems of subemployment in the slum area of North Philadelphia. There is a great need to know more about these special problem areas, which District personnel should undertake.

A further line of inquiry for program development, given the very slow reduction in poverty numbers in Pennsylvania during 1960-66, would be to ask whether all anti-poverty programs taken together are sufficiently geared to long-term goals of reducing poverty, as contrasted to programs which are holding actions, which ameliorate the lot of the poor but do not move them out of their poverty condition.

The overall performance of the vocational education programs in meeting special needs of Pennsylvania students is presently inadequate. Programs cited above are limited to local districts with personnel, funds, and resourcefulness to invest. To reduce the unemployment and poverty among disadvantaged people requires an extensive research and developmental program in learning the best ways to cope with the problems of these people, and then making a concerted effort to involve them in programs across the state.

SECTION VI--SPECIAL STUDIES

CHAPTER XIV--A SYSTEM FOR FOLLOW-UP OF VOCATIONAL EDUCATION GRADUATES AND EARLY LEAVERS

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SECTION VI--SPECIAL STUDIES

CHAPTER XIV

A SYSTEM FOR FOLLOW-UP OF VOCATIONAL EDUCATION GRADUATES AND EARLY LEAVERS

INTRODUCTION

The Vocational Education Act of 1963 required the States to evaluate Federally aided programs, particularly with regard to how effectively such programs meet identified manpower requirements. The amendments to that act, P.L. 90-576, place even greater emphasis on the annual evaluation of all aspects of vocational education programs. Even if this were not the case, a sound argument can be made for the States to develop systematic program evaluation procedures. Most of the funds expended for vocational education programs are supplied by State and local educational agencies. With the sharply increased investment in public vocational education, it becomes essential to evaluate the effectiveness and efficiency of the programs. The ultimate objective of such evaluation obviously is to improve the effectiveness and efficiency in terms of the purposes and objectives of vocational education.

One of the important measures of a program is to determine what happens to the graduates and early leavers. Up to this time, Pennsylvania has attempted to use a hand operated annual placement study of its graduates. This procedure has some deficiencies in that all districts did not participate and the results frequently were not too reliable. A number of other follow-up surveys were conducted but procedures of surveys varied widely. Often the data reported had limited value for program planning and evaluation at the State level.

Under contract with the Pennsylvania Department of Public Instruction, the Educational Systems Research Institute, Pittsburgh, has developed a computerized system to follow-up vocational education graduates and early leavers. The system requires the full cooperation of local school districts and relieves them of much of the burden and almost all of the costs associated with this type of survey.

The system is described in detail in an operator's manual entitled, Pennsylvania Occupational Education Survey Manual. A brief description of the system is included in this chapter. Modifications in the formats and procedures of the system can be made as it becomes operative.

OBJECTIVES OF THE SYSTEM

The general objective of the system is to provide useful data and information about the employment and further education of vocational education program graduates and early leavers by means of an organized annual survey.

In addition, the following specific objectives will provide for:

- An annual program directory describing offerings in public secondary and post-secondary school institutions.
- An annual report describing growth in curriculum offerings, enrollments and graduate outputs.
- An annual reading of what graduates of occupational curricula plan to do after completing their course of studies.
- An annual assessment by instructors of how well individual occupational curriculum graduates are suited for employment in the field for which they were trained.
- An annual report describing student behavior patterns after school, in the first job, and on the job or situation occurring twelve months after graduation.

GENERAL DESCRIPTION OF THE SYSTEM

The survey system herein proposed is essentially a procedure for obtaining:

1. By school district report from each school such information as:
    - Occupational curricula offered
    - Enrollments in curricula offered
    - Graduate output in curricula offered
    - Recent curriculum additions
    - Percentage of minority group enrollment
    - And other data useful for survey planning
2. By school district report for each graduate such information as:
    - Name and address
    - Occupational curriculum attended
    - Instructor rating of employability
    - Plans for post-graduation period
    - And other data useful for survey planning
3. By mail survey from each graduate such information as:
    - Employment history since high school
    - Education history since high school
    - Assessment of occupational education
    - Influences on occupational course selection
    - Use made of school student services
    - Socioeconomic origins information
    - An other relevant evaluative information

4. By computer analyses at the State level the following end-products:

- Pennsylvania Occupational Curriculum Directory
- Pennsylvania Occupational Education Growth Report
- Pennsylvania Occupational Student Follow-Up Report

The attached flow diagram shows the relationship between State and local levels in the unfolding of the system. It also indicates the products generated by each of the data forms and some of the uses to which these products can be put. The details will be discussed later in this chapter.

OCCUPATIONAL EDUCATION CURRICULUM (PHASE I)

The first phase of the annual occupational curriculum graduate (and early leaver) follow-up survey involves obtaining information from the Pennsylvania school districts about occupational curriculum offerings. The Occupational Education Directory Data Form was designed for this purpose. The completed data form provides two basic kinds of information:

- Secondary school level occupational curricula offered by each school in Pennsylvania

- Related occupational curriculum information, e.g., duration in years, maximum work stations, all grade enrollments, twelfth grade enrollments and first-time curriculum offerings

The Occupational Education Directory Data Form and instruction sheet is found in Appendix D. It is an 8-1/2 x 11 form designed for machine reading by Digitek optical scanning equipment. Information is recorded on the form by means of making heavy, soft-pencil marks in appropriate answer spaces. Each form has space for describing ten (10) occupational curriculum offerings, five on each side of the form. The data forms are completed at each school location in early Fall.

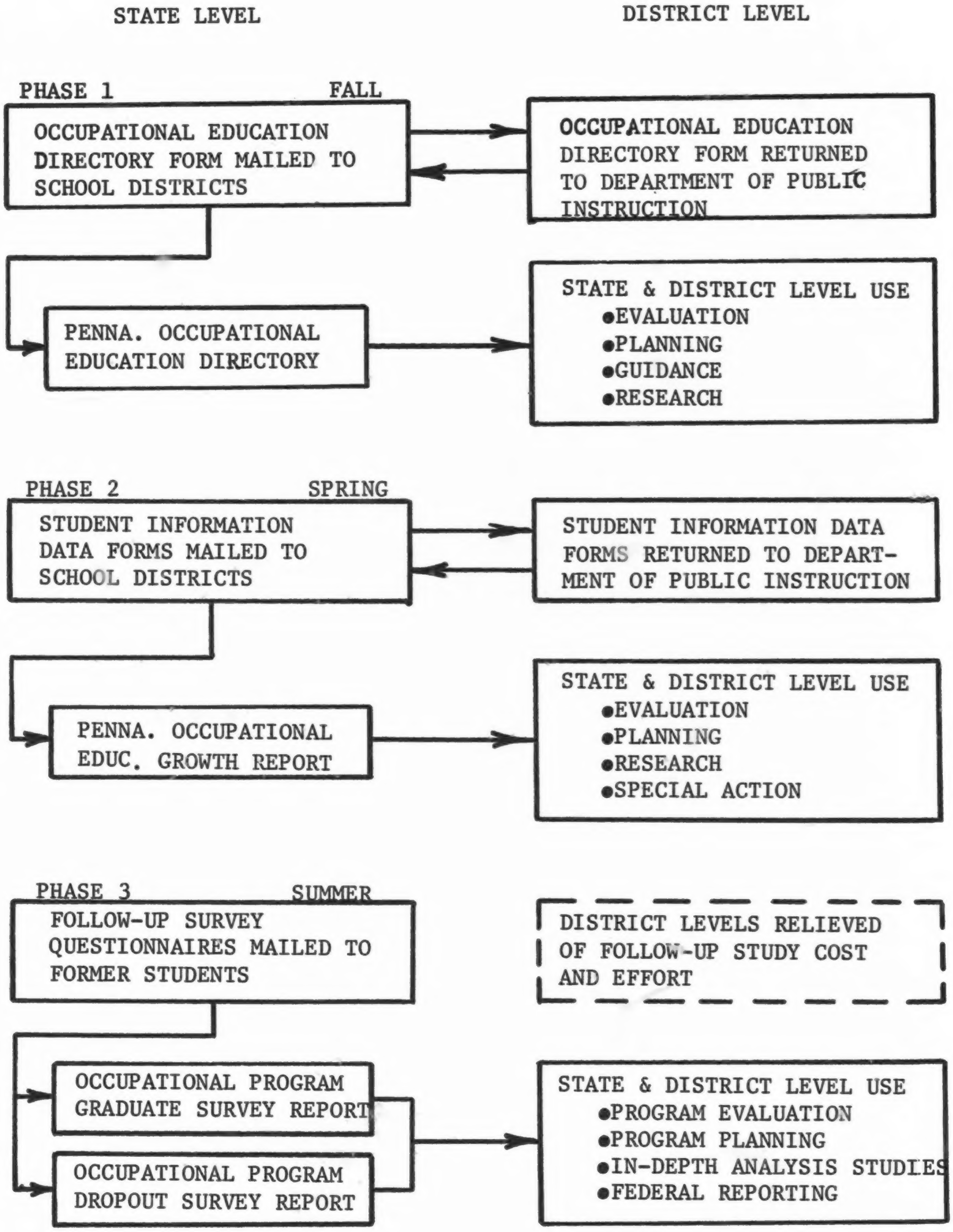
The data form consists of four types of information blocks:

- Curriculum description blocks
- Number of curriculum offerings block
- Minority group ratio block
- School identification block

OCCUPATIONAL EDUCATION DIRECTORY

The Pennsylvania Occupational Education Directory is a valuable by-product of the follow-up procedure. The Directory is produced initially in the form of a computer printout. The source is the occupational education directory data tape generated from the occupational education directory

THE RELATIONSHIP BETWEEN STATE AND SCHOOL DISTRICT LEVELS IN TERMS OF THE THREE BASIC DATA FORMS IN THE FOLLOW-UP SYSTEM AND PRODUCTS DERIVED FROM THOSE DATA FORMS


STATE LEVEL
DISTRICT LEVEL
PHASE 1
FALL
OCCUPATIONAL EDUCATION DIRECTORY FORM MAILED TO SCHOOL DISTRICTS
OCCUPATIONAL EDUCATION DIRECTORY FORM RETURNED TO DEPARTMENT OF PUBLIC INSTRUCTION
PENNA. OCCUPATIONAL EDUCATION DIRECTORY
STATE & DISTRICT LEVEL USE
●EVALUATION
●PLANNING
●GUIDANCE
●RESEARCH
PHASE 2
SPRING
STUDENT INFORMATION DATA FORMS MAILED TO SCHOOL DISTRICTS
STUDENT INFORMATION DATA FORMS RETURNED TO DEPARTMENT OF PUBLIC INSTRUCTION
PENNA. OCCUPATIONAL EDUC. GROWTH REPORT
STATE & DISTRICT LEVEL USE
●EVALUATION
●PLANNING
●RESEARCH
●SPECIAL ACTION
PHASE 3
SUMMER
FOLLOW-UP SURVEY QUESTIONNAIRES MAILED TO FORMER STUDENTS
DISTRICT LEVELS RELIEVED OF FOLLOW-UP STUDY COST AND EFFORT
OCCUPATIONAL PROGRAM GRADUATE SURVEY REPORT
OCCUPATIONAL PROGRAM DROPOUT SURVEY REPORT
STATE & DISTRICT LEVEL USE
●PROGRAM EVALUATION
●PROGRAM PLANNING
●IN-DEPTH ANALYSIS STUDIES
●FEDERAL REPORTING

data forms. The directory format includes a listing of school districts, curriculums, duration, and grade enrollments. The directory information is classified into five regional areas of the State:

Pittsburgh and Allegheny County
Western Region Counties
Central Region Counties
Eastern Region Counties
Philadelphia County

The counties that comprise the Eastern, Central, and Western regions are similar to the recommended field regions as shown on Map No. 1 in Chapter 7.

Excluding Allegheny and Philadelphia counties, which are separate regions, the schools are classified by school districts and school districts are grouped by counties in the Directory. The format for Allegheny and Philadlephia counties is similar to that used in the multiple-county regions.

USE OF THE DIRECTORY

Aside from use as a general reference source, the occupational education directory can serve valuable purposes such as:

1. Guidance activities related to occupational education--School counselors will find the Directory useful for providing students with information about curriculum offerings in other school districts. For example, the student whose parents plan to move to another school district will find such information useful for career planning.

2. Research applications--It is often necessary in occupational education research to know what schools offer specific kinds of occupational curricula. The organization is convenient for stratified random sample construction for regions and labor markets.

3. Year-to-year growth comparisons--Although the occupational education growth report will not provide curriculum, enrollment and graduate output growth data for individual schools, a comparison of the same school(s) in terms of year-to-year directory information will reveal the annual growth of individual schools and school districts.

4. Special analyses--The Directory permits easy tabulation of data, such as curriculum offerings, enrollments and graduate output related to school districts, counties and labor markets. The raw school data is available for tabulation into any type of grouping desired.

OCCUPATIONAL STUDENT INFORMATION (PHASE II)

The second phase of the annual follow-up system involves contacting the schools in late Spring to obtain information about the coming June occupational curriculum graduates and the school early leavers from such programs in the past school year. The Students Information Data Form was designed for this purpose. The data form provides three types of information about each graduate before he leaves school:

- Name and address
- Plans for after graduation
- Instructor assessment of the student

The Student Information Data Form and instruction sheet is found in Appendix E. The form is designed for machine reading by Digitek optical scanning equipment. Student information is recorded on the form by both the instructor and the student by making heavy soft-pencil marks in appropriate answer spaces.

The data form consists of four types of information blocks:

- Name and address block
- Student self-description block
- Instructor student assessment block
- Student identification number block

OCCUPATIONAL EDUCATION GROWTH REPORT

The data tape from which the occupational education directory is obtained provides, as a by-product, a basis for reporting growth in occupational curriculum offerings, enrollments and graduate outputs. Such growth may be described by comparing successive years in terms of percentage increases (or decreases) in number of curriculum offerings, in first time curriculum offerings, in enrollments, and lastly in the output of graduates as derived from the occupational student information form.

The occupational education growth report will provide the aforementioned data for the State as a whole, as well as the five field service regions. Finer breakdowns of the data, such as analyses by labor markets, counties or school districts, are also possible. However, such analyses are made by special request rather than by a regular operational report. The present chapter is concerned only with the regular operational report which consists of four sections:

- Current school year curriculum offerings and enrollments
- Growth in curriculum offerings over prior year
- Growth in curriculum enrollments over prior years
- Growth in graduate output over prior year

USE OF THE GROWTH REPORT

Several tables are generated for each section. Other analyses may be made from the existing data. The basic information presented in the occupational educatiion growth report will undoubtedly be useful for a variety of purposes and objectives. The particular value is that much of the information may be used for state-level planning and evaluation. The information will also be available to meet the U.S. Office of Education needs.

THE FOLLOW-UP QUESTIONNAIRE (PHASE III)

In the first place, the test of the effectiveness of occupational programs is how well their graduates fare in the world of work. This implies a follow-up procedure to determine the employment experiences of graduates.

Each year, on or about June 15, all high school occupational curriculum graduates (except for only 10% of office occupational graduates) of the previous year will be surveyed by means of a questionnaire. The complete questionnaire consists of two basic sections: (1) a standard questionnaire section which probes the post-high school employment experiences of the former students, and (2) a questionnaire supplement section on selected topics. The standard questionnaire provides the following kinds of information:

After school, then what?

1. Where the student went after high school.
2. Whether he has ever held a full-time job.

About the first job:

3. How long did it take to get the first job?
4. How did he go about getting his first job?
5. Did he want to work in the field for which he was trained?
6. If not, why didn't he want work in the field?
7. When did he first decide to leave his chosen vocational field?
8. What type of work was involved?
9. How related was the work to his training?
10. If in the field of training, how well was he prepared?
11. If not in the field of training, why not?
12. Did the first job involve a change of residence?
13. If so, how far (in miles) did he go?
14. How satisfied was he with the first job?
15. What was his starting salary?
16. Is he still with his first full-time job employer?
17. If not, how long did his first job last?
18. What were his reasons for leaving his first employer?
19. What is his present employment, education or military status?

About the present job:

20. How satisfied is he with his present job?
21. What are his present hourly earnings or equivalent?
22. How related is his present job to his vocational training?
23. How much unemployment has he experienced since his first job?

It will be noticed that the standard questionnaire is almost exclusively concerned with the graduate's employment experiences in the first year after completing his occupational program. This is in accord with the principle, herein adopted, that the key to evaluating the effectiveness of occupational programs is employment experience data derived from graduates. For details of the questionnaire items, consult the form in Appendix **F**.

The supplement section of the questionnaire will provide information each year about two topics selected from the following list:

1. Post High School Education and Training
2. High School Occupational Course Selection
3. Assessment of Present Training Needs
4. Assessment of Former High School
5. Occupational Student Socioeconomic Origins
6. Geographic Mobility Information
7. School Early Leavers Information
8. Occupational Student Personal Characteristics

Each of the supplement units consists of a set of questionnaire items designed to give a general reading on the topic of the unit. Thus, for example, the "Post High School Education and Training" unit consists of items of information that together tell the story of what kinds of post-secondary school training the graduates are seeking.

OCCUPATIONAL STUDENT FOLLOW-UP REPORT

The follow-up survey report has been designed to eliminate the text and table preparation that normally goes with this type of data presentation. The report will consist of a series of tables generated as a computer printout. Approximately twelve basic tables comprise the graduate follow-up survey section of the report. Other tables may be generated as desired. Separate reports will be made for occupational curriculum dropouts.

FIVE-YEAR FOLLOW-UP PLAN

A common criticism of vocational education follow-up studies has been that they are usually designed only as a placement study of graduates within one year after completion of their training. In most studies, there has been no longitudinal aspect of the student's work experience or continued study which would reveal outcomes of a program after the student has been out of high school particularly, for some extended period of time.

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Therefore, an extended five year follow-up of selected graduates and early leavers has been contemplated in the Pennsylvania follow-up system. Such a continued follow-up would provide a much broader base of information to judge the value of vocational education programs. The results of analyses of the responses of graduates having five years of experience and maturity in the world of work would be invaluable for vocational education program planning.

The present system is designed to structure a follow-up of graduates and early leavers on a sampling basis at a five year interval or any other interval after graduation, as might be determined by Federal, State or local school district interests. The specific details of the longitudinal study are not included in this report but a procedure and format similar to those in Phase III is being developed and will be available at the appropriate time.

CONCLUSIONS AND RECOMMENDATIONS

The Pennsylvania system for follow-up of vocational education graduates and early leavers was developed through the efforts of the staffs of the Bureau of Vocational, Technical and Continuing Education and the Research Coordinating Unit under a contract and in cooperation with the Educational Systems Research Institute, Pittsburgh, Pennsylvania. It was designed to meet the requirements of Federal and State educational agencies and local school districts for a continuous follow-up of vocational students. The System provides useful information for evaluation, planning, research, guidance or special studies for use by each level of government.

As it goes into operation, the system will undergo a rigid test in Pennsylvania school districts. Necessary revisions will be made to improve the forms, procedures, and outputs. Initial trials have demonstrated that the system can be continuously operated annually at a comparatively low cost by a contractor or the Department of Public Instruction staff.

Recommendations. It is recommended that a cost analysis be made to determine the efficiency and effectiveness of the system under a contracted arrangement as compared to a State operated program.

It is recommended that the Bureau of Vocational, Technical and Continuing Education provide staff, as suggested in Chapter VII, to work full time in analyzing the follow-up data and information with a view toward continuous improvement of the program. The uses and value of the meaningful data available from the results of this system will be determined by the initiative and imagination of the operating staff.

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SECTION VI--SPECIAL STUDIES

CHAPTER XV

EMPLOYER SURVEY

The Pennsylvania State Chamber of Commerce assisted in the design and conduct of a survey of 2,000 business and industrial employers throughout Pennsylvania to obtain information and opinions that would be helpful in State-local program planning. Although only 22% (438) of the employers responded to the questionnaire, the results were such that some reasonably reliable general conclusions could be derived. A copy of the questionnaire can be obtained from the Research Coordinating Unit.

Returns represented a cross section of employers within the Commonwealth: 292 responses were from firms whose primary interest was in some phase of manufacturing; 41 responses were from businesses whose primary interest was in finance, real estate or insurance; 34 responses were from businesses whose primary interests involved transportation, communications, and utilities; 23 responses were from businesses involved with the service aspect of industry; 22 responses were from businesses whose prime interest was in retail or wholesale distribution of products; and 24 responses were from firms whose primary interest was construction.

Replies were received from industries and businesses ranging in size from eleven employees to more than 1,000 employees. Thirty percent of the replies came from firms employing between 100 and 500 persons. The 438 employers who responded indicated an employment of 44,728 technical employees in the operation of their business: Design and drafting technicians were employed by 431 employers; engineering technicians by 175; electrical and electronic technicians by 141; production technicians by 131; and physical science and other types of technicians by 139 employers. All of the responding employers reported the employment of 30,105 professional workers and 27,435 technicians or roughly a ratio of 1 to 1. Since the responding employers represented approximately 22% of those contacted, a straight line projection applied to the 2,000 employers would indicate an approximate total employment of 140,000 professionals and 125,000 technicians.

An effort was made to determine the various sources of trained technicians. Most of the employers (238) reported that they train their own technicians; 136 used graduates of the area vocational-technical schools; 93 used graduates from community colleges; and, 135 employers attracted their technicians from other employers.

Apparently employers' experience with the technicians hired after graduation from the secondary vocational-technical programs in the Commonwealth has been exceptionally good. In this regard, there were 115 favorable responses compared to 17 who had unsatisfactory experiences. The responding employers'experience with technicians who were products of the public and private postsecondary program (177) was also favorable. Only 20 employers indicated unsatisfactory experience with postsecondary school

438

graduates. More than 200 employers expressed preference for technicians prepared by the community colleges.

On-the-job training was provided by 176 employers for their technicians. As vocational education moves into a greatly expanded cooperative training program, the employers with established training programs will be able to provide much of the specialized on-the-job training required in a cooperative type program.

The responses emphasized the need for more trained technicians to supply the replacement and expansion needs of industry. Within the next year, 1969-70, those respondents who employ technicians indicated that 1,188 technicians would be needed to replace those leaving their employment. In addition, 1,091 technicians will be needed because of industry growth within the next year.

In the next two years, 1970 through 1971, 2,184 additional replacements will be needed and another 1,858 technicians to meet expansion requirements. The responding employers also projected their needs to 1975 for replacement and expansion. Between 1969 and 1975, 3,761 technicians will be needed for replacement purposes and an additional 4,761 will be needed for expansion within the responding industries. If the estimates of the responding employers (representing about 12 percent of the total number of employers in the industries sampled) are projected into 1975, the estimated replacement and expansion need into 1975 for these industries which are not all inclusive of employment would approximate 78,000 of an annual average of 13,000. This is of course a rough approximation, based as it is on a non-scientific sample, but it does give some indication of the volume of need.

In 1967, all of the public and private vocational-technical education programs in the Commonwealth graduated about 6,000 technicians. This is less than one-half of the estimated annual need up to 1975. To meet the anticipated need for technicians in 1975, the annual output of technical education graduates would need to be more than doubled. And these figures do not include "government" which is one of the largest if not the largest employer of technicians. If the public vocational school programs were planned to offer the training programs needed and required by industry, the survey showed that 287 employers of these respondents in the survey would be receptive to employing the graduates. Only seven negative responses were received. The obvious conclusion was that if the programs offered in the vocational-technical schools were of the type needed by industry graduates of these programs would have no difficulty in securing placement. There was also the obvious conclusion that the vocational-technical school program administrators need to work cooperatively with employers to assist in determining the offerings required in the local area.

In the past a few vocational-technical schools have operated on a part-time cooperative arrangement with local industries and businesses where the student receives his general education and the theory instruction related to the job within the limits of the school or department and the on-the-job phase of his training is received in an actual work situation in the respective industry or business. Many more part-time cooperative programs are needed if the schools are to provide realistic training in terms of existing job opportunities and requirements. Many employers (191) expressed willingness to provide on-the-job training opportunities for vocational-technical students participating in an approved part-time cooperative program.

The Vocational Education Amendments of 1968 authorized earmarked funds to promote and pay 100% of the costs of part-time cooperative training programs. The new act further provides financial assistance to employers for added costs incurred in providing on-the-job training. The encouragement provided by the act and the willingness of business to participate should result in the rapid expansion of part-time cooperative programs involving the schools and business in providing up-to-date training for the youth of the Commonwealth.

As might be expected, many employers (262) encourage their employees in many different ways to attend various adult education courses. This ties in with the fact that 154 employers anticipate new types of equipment or processes which will affect job requirements and therefore require additional specialized training. Some of the newer areas of training specified by the employers were numerical control, electronic data processing, electronic devices, and chemical processes.

Although this was only an informal survey of some employers in Pennsylvania, it did reveal their considerable knowledge of and interest in the various developing occupational training programs in the State. More important, the survey indicated favorable general acceptance of the programs and their graduates and the employers willingness to assist in the further development and improvement of those programs.

The following is an outline summary of the 438 employers' responses:

AN OUTLINE SUMMARY OF THE RESPONSES OF 438 EMPLOYERS*

1. Prime Function of Respondent	Number of Employers
A. Manufacturing	292
B. Finance-Real Estate-Insurance	41
C. Transportation-Communication-Utilities	34
D. Construction	24
E. Service Industry	23
F. Retail Trade	11
G. Wholesale Trade	11
H. Agriculture Service	2

2. Employees	Number of Employers
A. 11 - 25	21
B. 26 - 100	76
C. 101 - 500	176
D. 501 -1000	73
E. Over 1000	92

3. Employee Classification	Number of Employees
A. Professional	37,847
B. Technical	44,728

4. Technical Fields	Number of Employers
A. Electrical and Electronics	141
B. Design and Drafting	431
C. Production	131
D. Engineering	175
E. Physical Science	47
F. Other	92

5. Source of Technicians	Number of Employers
A. Graduates Area Voc-Tech. Schools	136
B. Graduates of Community Colleges	93
C. In-plant Training	238
D. Employ - then send to school	87
E. Other employers	135
F. Other	69

*Numbered items correspond to the items on the questionnaire

6. Rating of Technicians Employed From	Number of Employers	
	Good	Unsatisfactory
A. Secondary Schools	115	17
B. Public Postsecondary	106	8
C. Private Postsecondary	71	12
D. Industries in State	83	6

7. Use of Engineering School Dropouts as Technicians	Number of Employers
A. Very Much	12
B. Some	101
C. Very Little	145

8. Advancement or Employment of Skilled Craftsmen as Technicians	Number of Employers
A. Often	70
B. On Occasion	179
C. Never	38

9. Technicians Should Be Prepared By	Number of Employers
A. On-the-job Training	176
B. Special Industry Schools	86
C. Area Voc-Tech. Schools	205
D. Community Colleges	134
E. Private Schools	49

10. Additional Technicians Needed	Number of Employees	
	Replacement	Expansion
A. Next Year (1969)	1188	1091
B. In Two Years (1970-1972)	2184	1858
C. By 1975 (1969-1975)	3956	4761

12. Believed a Shortage of Technicians Existed in Local Area	Number of Employees
A. Very Great	137
B. Average	183
C. Very Small	18

14. Would Employ Vocational School Graduates if Trained in Job Needs	Number of Employers
A. Yes	287
B. No	7

16. Would Provide Part-Time Cooperative Training for Vocational Students	Number of Employers
A. Yes	191
B. No	78

17. Preference given to Vocational Graduates in Hiring	Number of Employers
A. Yes	227
B. No	50

18. Are Vocational Graduates more Desirable As Employees	Number of Employers
A. Yes	192
B. No	30

19a Traits Considered most Important for Business and Office Employment	Number of Employers
A. Pride in Work	232
B. Cooperation	137
C. Initiative	193
D. Attendance	173
E. Using Common Sense	190

19b Skills Considered most Important for Business and Office Employment	Number of Employers
A. Organization of Work	244
B. Accuracy	230
C. Arithmetic	178
D. Grammar	165
E. Spelling	155

21. Encourage Employees to Attend Adult Courses	Number of Employers
A. Yes	262
B. No	19

24. Vocational Instructors Should Keep Abreast of Current Industrial Techniques	Number of Employers
A. Yes	248
B. No	17

25. Would Assist in the Development of a Plan to Familiarize Instructors with Current Practices in Industry	Number of Employers
A. Yes	223
B. No	14

27. Would Anticipate new types of Equipment or Processes which would require training or affect job requirements	Number of Employers
A. Yes	154
B. No	115

28. Areas of training required to accept Job Positions		Number of Employers	
1. Numerical Control	21	4. Chemical	16
2. Electronic Data Processing	68	5. Other	140
3. Electronic	45		

29. Reaction to the Pennsylvania Plan for The Development and Improvement of the Vocational-Technical Education Program	Number of Employers
A. Very Favorable	105
B. Favorable	138
C. Unfavorable	3

30. Would Serve on an Advisory Committee for Vocational-Technical Education	Number of Employers
A. Yes	208
B. No	41

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SECTION VI - SPECIAL STUDIES

CHAPTER XVI

LOCAL ADMINISTRATOR SURVEY

The ultimate responsibility for effective vocational education is at the local level where the programs are established and operated. In view of this it was deemed important that a study should be conducted to obtain a clear picture of local organization and State-local administrative relationships. Obviously, good communication, that is, an effective system of exchanging important program information currently and continuously is essential. An informal survey instrument was developed to obtain local vocational education administrators reactions to and opinions of present local administrative patterns and also to solicit recommendations which in their opinion would result in more effective and productive working relationships.

The following eight questions were posed in a survey instrument:

I. What vocational programs are operating in your school or district?

II. What vocational programs do you administer and supervise?

III. What vocational extension or adult programs do you administer?

IV. Please identify briefly in order of importance the problems you consider to be handicaps in the administration of a local vocational program. If you desire or need to expand your views, please place on additional sheets.

V. Please identify briefly in order of importance the problems you consider to be handicaps in working with the State vocational staff.

VI. Please list any suggestions or recommendations you might have for improving communications between the State department and local administration. For example: workshops, newsletter, conferences, etc.

VII. Please list any other suggestions or recommendations that you believe would improve the administration and supervision of any or all local programs of vocational education and hence improve the quality of vocational education programs.

VIII. What kinds of additional assistance do you need or desire from the State Vocational Staff?

As shown below in Table136, the survey instrument was sent to the 95 local directors of vocational education in the Commonwealth and 79 (83%) responded. A 99% response was received from the directors of area vocational-technical schools.

Complete detailed lists of all the responses to each of the questions are available in the Research Coordinating Unit.

TABLE 136

LOCAL DIRECTOR SURVEY RESPONSES

Type Program Directors	Total Number	Responses	Percent Returns
Comprehensive High Schools	40	25	63%
Area Voc. Tech Schools	55	54	99%
Totals	95	79	83%

A tabulation of the 79 directors' responses to Question 1, "What Vocational Programs are operating in your school or district?", showed that agriculture education was offered in 35 districts or schools; business and office education in 40; distributive education in 48; home economics education in 45; health occupations education in 40; trade and industrial education in 71; and technical education in 49. It is significant that no single director reported that all seven types of occupational education programs are conducted in any one district or school.

Responses to Question II, "What Vocational Programs do you administer and supervise?" are indicated in Table137.

TABLE 137

OCCUPATIONAL EDUCATION PROGRAMS ADMINISTERED AND SUPERVISED BY LOCAL DIRECTORS OF VOCATIONAL EDUCATION

PROGRAMS	AG.	BUS.	D.E.	H.EC.	HEALTH	T&I	TECH.
AGRICULTURE	29	17	24	19	20	29	27
BUSINESS	17	31	25	24	20	30	25
DISTRIBUTIVE EDU.	24	25	46	33	28	46	42
HOME ECONOMICS	19	24	33	40	27	39	34
HEALTH	20	20	28	27	36	36	32
TRADE & INDUSTRIAL	29	30	46	39	36	69	50
TECHNICAL	27	25	42	34	32	50	50

Table 137 identified the frequency of occupational offerings and the combinations of occupational programs in relation to a total vocational program. For example, there are 69 trade and industrial programs under the supervision of a director of vocational education. In conjunction with the trade and industrial programs, there are 29 agriculture, 30 business, 46 distributive, 39 home economics, 36 health and 50 technical education. The table 137 also shows the combinations of occupational programs available if a "mix" type program were to be offered. For example, of the 29 schools with agriculture programs under the supervision of a local director of vocational education, 17 schools have business education, 24 have distributive education, 19 have home economics, 20 have health, 29 have trade and industrial, and 27 have technical programs but again none of the schools offer all seven occupational programs.

One of the effects of this is that many students enrolled in an agriculture program who desire or need to supplement the agriculture instruction with courses in other occupational areas do not have the opportunity. The only exception to this is in trade and industrial education where the 29 agriculture programs are supervised by a local director of vocational education. It was not the intent here to determine why there are not total vocational offerings available in all schools under the supervision of a local director of vocational education, but rather to show the actual situation as reported by the local directors.

A further analysis of responses to Questions I and II suggested that many of the occupational programs were operated as independent programs, without supervision and direction from a local director of vocational education. These responses indicated that quite a number of the vocational extension or adult programs, with the exception of Trade and Industrial and Technical programs, are either not under the supervision of the local director of vocational education or are not offered at all. This finding verifies the vast underdevelopment of vocational adult education offerings revealed in earlier chapters.

PROBLEMS AND HANDICAPS IN LOCAL ADMINISTRATION

The following is a summary of the responses of the local directors to the request in Question IV to identify problems and handicaps in the administration of local vocational education programs. The major problem areas identified involved guidance, local administrative procedures, State administrative procedures, finance and personnel.

1. Guidance

The number and variety of comments about guidance and counseling services related to vocational education, both in the comprehensive high school and the area vocational-technical school, indicated a need for a thorough review of those services. Local directors of vocational education were very critical of the apparent lack of qualified counselors who are knowledgeable about the "world of work" and of the training opportunities available to those students who are in need of and able to profit from vocational education programs.

The use of the vocational education programs as a "dumping ground" for those students not wanted in other programs, regardless of their individual desires or abilities, was a common criticism of the guidance program. The following expressions, extracted from local directors' responses, clearly indicated the need for reevaluation of the guidance and counseling functions:

- There are limited guidance services and try-out experiences at the junior high school level.

- Guidance is unrealistic in relation to program objectives.

- Aptitudes and abilities are not identified.

- Vocational education is used as a "dumping ground."

- Poor selection of students for entrance into vocational programs.

- Need improved guidance and occupational counseling.

- Low ability students are sent to vocational education.

- Counselors need to be oriented to non-professional and job training opportunities.

- Problem students are guided into vocational education by academic counselors.

- Inadequate diagnostic testing.

- Too few counselors.

- Need orientation of guidance personnel in sending districts.

- Lack of coordinated guidance system between the area vocational-technical school and the home school.

- Guidance counselors are uninformed about the philosophy of vocational education.

- There is a lack of understanding in scheduling.

2. Relationships between Local Directors and the Local Administrator

Another major concern of local directors was their relationship with the administrative staff of the local school district. In general, the local directors contended that the role of vocational education was relegated to a position of secondary importance in the school program.

The respondents identified complexities and inadequacies of present administrative structures, particularly as they involved the administration of vocational education programs in the comprehensive high schools and the area vocational technical schools. The many boards of education involved in the organization and operation of an area vocational-technical school create a cumbersome administrative structure that requires a director to have the wisdom of Solomon to attain the concurrence of the majority. This situation is further compounded by the requirement that there shall be numerous advisory committees involved in the operation of an area vocational-technical school. It is a rare occasion when a director can successfully mold all boards and committees into an effective organization.

Another mitigating factor cited was the reluctance of many school administrators to recognize the importance of vocational education in the total education process. In the past, changes in educational philosophy have been a slow, laborious process. However, in today's society where technological changes occur almost daily, educators need to re-evaluate their philosophy in terms of tomorrow's needs and adjust programs accordingly. Educators also need to recognize that vocational technical and continuing education today is not static, but rather is a dynamic force to be geared to socioeconomic needs for flexibility in vocational education programs and should encourage the establishment of programs to meet the changing needs of industry.

Before vocational, technical and continuing education can function effectively at the local level, it must be recognized as an important part of the school program with status equal to all other school programs. The local administrative family must accept the vocational administrator as an equal partner in program administration and planning. Otherwise, administrative conflicts will develop and adversely affect the total educational program.

3. Relationships with the State Administration

The third area of concern in the administration of a local program of vocational education relates to handicaps in dealing with the State administrative staff. The many and varied reporting forms required by the Staff staff were reported as handicaps more frequently than any other. The lack of an efficient and rapid communication system, particularly in regard to changes in regulations and policy, was also frequently mentioned as a deterrent.

Local directors were concerned about the lack of uniform policy standards for the various areas of vocational education. This lack of uniformity creates problems particularly in the administration of the area vocational-technical schools where there are several different occupational education programs represented. Several administrators referred to the excessive amount of "red tape" required by the State administrative staff from the local program administrators. Concern was expressed about the length of time required to obtain approval of program changes, building renovations, and new construction applications.

4. Fiscal Problems

The fourth area of concern in the administration of a local program of vocational education dealt with fiscal problems. Local directors of vocational education believe that financial support is inadequate and policy should be revised to provide adequate and equitable financial assistance to vocational programs in both comprehensive high schools and area vocational-technical schools. Funds are needed to replace and modernize obsolete equipment and to assist in obtaining highly skilled instructors from industry. The present teachers' salary scale is inadequate to encourage personnel to give up good-paying positions in industry to enter the teaching profession.

5. Reimbursement Formulas

The present reimbursement formula for assisting vocational extension programs has not been changed in several years and is unrealistic in today's setting. In order to obtain competent instructors from industry for extension programs, sponsoring districts must assume the greater portion of the instructors' salaries. The reluctance of a district to assume this added fiscal responsibility is a handicap to the development of an adequate extension program to upgrade those in their present employment and retrain those about to enter a new occupation.

Several of the more common but emphatic responses extracted from the survey were as follows:

°Reimbursements are inadequate and unrealistic for comprehensive high schools.

°Need funds to modernize equipment.

°Differential funding insufficient.

°State reimbursement policy should be changed.

°There is a lack of uniformity in the subsidy program.

°Reimbursement too low for extension programs.

°Lack of adequate finance at the local level.

6. Personnel Problems - Certification Requirements

Two common problems identified dealt with the employment of qualified instructors and obtaining certification for those to be employed. The majority of instructors for trade and industrial educational programs must be recruited from industry where the potential instructor has earned a journeyman's rating after a learning period and has worked at the trade for a minimum of two years. If the potential teacher has been successful in his trade, the beginning salary offered for a teaching position is often too low to encourage him to enter the teaching profession. Even though the salary offered may be sufficient to attract a skilled craftsman, he is required to meet several certification requirements which must be completed if the candidate desires to begin and continue a career as a vocational teacher.

To satisfy the certification requirements, several college courses must be successfully completed and a competency examination taken to demonstrate his mastery of the subject to be taught. The time consumed in this procedure is often discouraging to craftsmen who desire very much to teach. Local directors were particularly critical about the length of time required by the teacher education institutions to evaluate and approve the qualifications of potential teachers.

Revised certification requirements have been reviewed and approved by the Department of Public Instruction, the teacher education institutions and the State Board of Education. A more complete report on teacher certification appears in Chapter X.

PROBLEMS AND HANDICAPS IN WORKING WITH THE STATE STAFF

On Question V, the local directors identified their problems, real or imagined, in dealing with the State staff for vocational education. An analysis of respondents' reactions indicated several problem areas that were handicaps in working with the State Vocational Staff.

1. Coordination Problems

The present administrative pattern of having coordination done by field staff representing each occupational area is considered a handicap. Respondents suggest that the coordination functions be combined into one area instead of the present practice of having a coordinator representing each of the five vocational areas. This would insure consistency in coordination which is presently lacking.

The infrequency of coordination visits by the field staff and the Harrisburg staff is considered a handicap since the coordination staff does not have an opportunity to become knowledgeable about local problems.

2. More Staff Assistance Needed

Local directors were concerned that staff should be increased so that appointments could be kept, more visitations could be made to programs, and more effective assistance could be available when needed. The coordination staff should be able and be permitted to give definite answers regarding local problems and such decisions should be respected at higher administrative levels.

3. Reporting Procedures Cumbersome

The reporting procedures required by the various occupational areas was considered cumbersome and time consuming, and quite often a duplication of previously submitted material. Reporting should be consolidated into one form simplified to eliminate duplication of requested information. Many reports request information already available from other Department of Public Instruction agencies.

4. Poor Communication

Many local directors of vocational education believe that communications between the local programs and the staff of vocational education is either slow, nonexistent or after the fact. Local directors believe that better communication would contribute greatly to their understanding of State policies and requirements. Local directors, particularly those embarking on a construction project or a renovation of present facilities, identified as a handicap the lack of specialists to assist in shop, laboratory, or classroom-layouts, curriculum requirements, and instructional equipment specifications.

5. Guides Needed

Specialists should be a part of the State staff and should assist in the development of curriculum guides and teaching aides in their various occupational program specialties. If curriculum guides were available for statewide usage, there would develop a more uniform pattern of vocational education courses throughout the Commonwealth. A more uniform program of vocational education would be an advantage in the transfer of students when parents move from one locality to another.

6. Resource Centers Needed

Local directors indicated a desire for the establishment of a resource center or centers where there would be available all resources that might be used to enhance an ongoing program of vocational education or assist in the development of a new program. Some suggested aids available from a center would be audio-visual materials, curriculum guides, equipment lists and sources, reference books, policy guides, Department of Public Instruction

Regulations, State and Federal laws and regulations pertaining to vocational education, labor market projections, research project results, and teacher recruitment and placement assistance. If regional offices for vocational education should become a reality they could become the resource centers for the various occupational education service programs.

Some representative replies to the Question V are listed below:

°Limited service by coordinators.

°Coordinator does not visit as frequently as the school wishes.

°Area coordinator should coordinate all occupational fields.

°Field representatives judgment should be respected by the State office.

°State Staff should be sensitive to local problems.

°Clarity in communication is needed.

°Uncertainty in making decisions.

°Inconsistency of service by different coordinators.

°Duplication of reports.

°Staff acts without understanding local problems.

°There is poor coordination between occupational areas.

°Specialists needed in layout, equipment, curriculum, etc., to develop guides for statewide use.

IMPROVING COMMUNICATION

Question VI solicited suggestions or recommendations for improving communication between the State Office and the local administrative staff. Seventy-seven percent of the respondents suggested or recommended the development of a plan to hold periodic regional or state conferences and workshops, varying from monthly to annually.

Thirty-seven percent of the respondents recommended the publication of a newsletter emanating from the State vocational office with wide distribution throughout the Commonwealth. A newsletter would be a supplement to the periodic conferences and would be a vehicle to keep the field informed of current happenings in vocational education.

Another frequent recommendation suggested periodic and planned visitations by the State staff to local programs. It was evident that some respondents felt they were not receiving as much assistance as they desire from the State field staff.

IMPROVEMENT OF LOCAL ADMINISTRATION AND SUPERVISION

Responses to Question VII were so varied that it was not possible to ascertain any one suggestion that reflected the views of more than one-tenth of the respondents. In an attempt to group the replies into specific concerns, it was found that about nine percent of the replies indicated a need for uniform standards and requirements in vocational education and the enforcement of the same. The great number and variety of responses indicated that the recommendations were related to particular local problems which did not necessarily affect other local vocational education programs. Many of the recommendations submitted on Question VII were a repetition of suggestions previsously stated in response to Questions IV and V.

ADDITIONAL ASSISTANCE

Question VIII asked local directors to identify the kinds of additional assistance they would like to have from the State staff. Although many local directors were satisfied with the present procedures, a majority requested that more funds be made available to expand programs for youths and adults and to assist in developing adult learning centers. Many suggestions had been noted in responses to the previous questions.

OTHER REPORTS

Two other reports relating to State and local administration of vocational education should be noted here. First, a task force of seven staff members of the Bureau of Vocational, Technical and Continuing Education worked between September, 1967, and October, 1968 in the preparation of a "Position Paper" which presented ideas concerning the possible reorganization of vocational, technical and adult education services in Pennsylvania. Although, some of the views of the position paper are not in agreement with the recommendations contained in Chapter VII, there are a number of excellent contributions such as personnel policies and the duties, responsibilities, and qualifications of the regional staff that should be given careful consideration for adoption in behalf of improved service to the local level.

Secondly, a report by a General Advisory Study Committee of the Vocational Administrators of Pennsylvania contains thorough analyses of a local administrative structure, and duties of various local administrative and supervisory personnel. This work would also be most useful in improving administration and supervision of programs at the local level.

CONCLUSIONS AND RECOMMENDATIONS

The excellent response to the local administrator survey, 83 percent, gave evidence of the great interest of the local directors of vocational education in the total vocational education program.

Many vocational education programs are operating in comprehensive high schools without the supervision and leadership of a local vocational education director. In many instances, the local director of vocational education had responsibility for the trade and technical education programs and a few other vocational programs. However, in many other cases home economics, distributive, business and agriculture education programs operate independently of a director. The lack of a well-organized unified administrative structure is further reflected in the fact that very few adult programs are administered by a local director of vocational education.

Local directors were greatly concerned about the inadequacy of communication between the school's administrative staff and the local vocational director's office. It appeared that the local directors believed taht heads of other educational programs, as well as educational administrators, were not sympathetic toward, or do not understand, the nature of vocational education philosophy and purposes. Counseling service needs to be expanded and improved so that all students, not just those academically oriented, may have adequate and appropriate educational and career guidance assistance. In many instances, where vocational education programs operate in the comprehensive high school, the programs were considered to be of secondary importance and as a result were inadequately housed, often in poorly lighted and ventilated basement rooms, filled with students not wanted by other teachers in the system.

Facilities in the newly constructed area vocational-technical schools are adequate and conductive in learning but the administrative structure is cumbersome and most difficult to organize. The many boards of education involved in the administration of an area vocational-technical school compound the director's problems and make effective administration most difficult. A simpler, more flexible structure in the administration of area school programs is needed if these programs are to meet the changing demands imposed by the technological advances in industry.

Much concern was expressed about the lack of adequate financial support available to the vocational education programs. Directors, particularly those in comprehensive high schools, questioned the present reimbursement policy which provides much greater support for programs in area schools. This is a deterrent to the development of programs in the comprehensive high schools.

The lack of uniformity in program reimbursement, such as $50 per average daily membership in distributive education, and $35 per A.D.M. in trade and industrial education was questioned by the directors. The present reimbursement policy has not been changed for many years and is unlikely to meet the requirements in the Vocational Education Amendments of 1968, P.L. 90-576.

Local directors' problems in relationship with the State staff for vocational education were mainly those of deficiencies in communication.

The survey provided an opportunity for the local directors to air their problems. It appeared that some of the problems were of a personal nature resulting from real or imagined problems and not necessarily the inadequacy or failure of the State vocational staff. In general the local directors were satisfied with present procedures, but they realized that much more can and should be done at all levels to provide the kind and quality of vocational education necessary to meet the needs of people and employers.

RECOMMENDATIONS. A local vocational education director should be designated as the administrative head of all occupational and continuing education programs in a school system. This would provide for effective, unified administrative leadership, a more centralized communication center, more uniform reporting and the avoidance of duplication in reports. The local vocational education director should have the same administrative authority for vocational education programs as the principal has for the academic programs. The vocational director and the principal should work together closely in a functional relationship and each should have equal responsibility to the Superintendent.

As a means of improving communication between the State office and the local programs, it is recommended that Statewide and regional conferences and workshops be held periodically and that a regular newsletter be distributed widely to inform the directors and other educational leaders of current developments in vocational education.

Occupational guidance, counseling and placement services should be available to all students, by well-trained occupationally oriented counselors. In-service programs should be established to inform counselors about the job and training opportunities available to all students.

The many boards of education involved in the operation of an area vocational-technical school should be reduced to a more workable number, either through consolidation or if necessary by legislative action.

Financial aid policies both Federal and State should be reviewed and more equitable funding policies developed to assist in the promotion, establishment and operation of vocational programs in the comprehensive high schools as well as the area vocational-technical schools.

Certification policies and requirements for all areas of vocational education should be reviewed continuously and revised as necessary to permit the use of qualified personnel from business industry and agriculture as instructors in certain areas of occupational specialties.

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SUMMARY--CONCLUSIONS AND RECOMMENDATONS

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SECTION--VII

SUMMARY--CONCLUSIONS AND RECOMMENDATIONS

Pennsylvania made great strides in expanding and improving its vocational, technical and continuing education opportunities between 1964 and 1968, especially in the construction and operation of more than 40 fine new facilities in the form of secondary area vocational-technical schools. The full impact of the area school growth is not yet evident. because of the lag between the opening of new schools and graduation of students. It appears that the construction of new secondary school facilities has now passed a peak and the rate of growth of area vocational-technical schools will very likely be much slower in the next several years. However, the development of postsecondary technical programs is still in its infancy.

Despite the substantial growth in the program, there are a number of overall program deficiencies which seem to persist. For example, the Pennsylvania program is still found predominately at the secondary level despite the increasing demands for postsecondary programs and graduates by employers and students. Another deficiency appears in a certain rate of decline in the number of adults served in part-time vocational-technical courses. It has always been accepted that the advent of new day school facilities would automatically enhance and expand an evening adult program. However, there is substantial evidence that this phenomenon is not occurring in the Pennsylvania program as it should. This is probably caused in part by a long history of inadequate funding of adult education at all levels of government.

Other program deficiencies were revealed as a result of the analysis of trends in enrollments in the various occupational education areas. The business and office education enrollments now have assumed first rank among the seven occupational categories. This rapid rise in growth came about because the Vocational Education Act of 1963 authorized aid to business and office education for the first time. As a result, many existing programs came within the provisions of the State Plan and hence were eligible for Federal financial assistance. The further consequence of the substantial business and office education programs was that all other occupational education programs were placed in a lower ranking percent of the totals of enrollments and expenditures even though all of the programs had grown somewhat in absolute numbers.

In summary, the substantial growth of the total enrollments between 1964 and 1968 from 109,904 to 234,090 tends to conceal program growth and relative deficiencies in the fields of health occupations, technical education, and in special needs programs for the socioeconomic disadvantaged. These latter three programs are vastly underdeveloped in the light of identified critical needs and rapidly growing demands in these fields. These rather obvious deficiencies are not only serious but the present outlook for changing the situation is not very encouraging.

Despite the excellent services rendered in a variety of continuing education programs the unmet needs of adults are tremendous. Unfortunately, the adult education programs as a whole did not receive adequate financial assistance from any of the three governmental levels, Federal, State or Local. Even though the adult education program in vocational and technical education was the largest segment of the total public school continuing education program,it was not developing as rapidly as it should. The comparatively low general education achievement level of the adult population in Pennsylvania and other similar indications of educational deficiencies, indicate that some drastic steps should be taken to expand and improve the various adult education services of the State. This summary contains certain recommendations for action by the State Board of Education and the Department of Public Instruction intended to help remove the program deficiencies and so that some essential steps can be taken to expand and develop new programs to meet important critical needs of people of the Commonwealth.

ECONOMIC TRENDS AND MANPOWER NEEDS

An examination of the economy of Pennsylvania revealed generally that the competitive posture of the State was not what it should be when compared with the Nation as a whole or with that of other similar or neighboring States. After considerable outmigration of many workers and their families in their prime years in the 1950's and the early 1960's, a gradual upturn developed in Pennsylvania's economic growth. The serious economic problem in Pennsylvania is most easily understood in the fact that 52 of the 67 counties in Pennsylvania are included in the Appalachian region and are sometimes classified as economically depressed areas. To put it another way, only the 17 non-Appalachian counties gained the substantial population and economic growth in the State.

The economic posture is of the utmost importance to more effective planning of vocational, technical and continuing education programs. The assumption was made that vocational education could become a real asset to the economy of Pennsylvania if there was knowledge and recognition of the trends and problems of the economy of the State, and training programs were designed and established to contribute to a more favorable economic climate for new potential employers. In the light of this assumption, the fifty fastest growing manufacturing industries in the Nation were identified and rated for use by State and local program planners. The occupational pattern of these industries was determined and is available to assist the vocational educator in planning programs to meet the occupational demands that are commonly found in the new potential fast growing industries. Further analysis of the Pennsylvania competitive posture revealed that considerable expansion of the part-time trade extension training program for employed workers would make a particularly significant contribution to the economy of the State.

PROGRAM PLANNING AND IMPLEMENTATION

State-wide program planning at best has been somewhat haphazardous and fragmented. This explains in part why there are some serious deficiencies in program direction. It seems evident now that the State Board for Vocational Education and the Department of Public Instruction should play a much more substantial leadership role in State-wide program planning.

In order to do this there needed to be developed an organized systematic planning procedure in which all educational and training agencies, public and private, could participate and contribute. A systematic approach was designed for the purpose of planning a total unified program of vocational and technical education at the local level. Only in this way does it seem possible that public and private funds can be used most effectively and efficiently in meeting all of the State's manpower training needs.

It is just as obvious that in order to adopt and implement a systematic planning procedure, an organization has to be designed in such a manner that it could carry out the new duties and responsibilities prescribed in the planning procedure. Analysis of all of the conditions and problems existing in the present organization indicates that certain changes should be made.

MANPOWER PROJECTIONS

Sufficient attractive job opportunities upon completion of training are absolutely necessary to complete the cycle of basic education, career choice, and occupational education. Directly related to the socioeconomic posture of the State was the current and projected trained manpower demand, State-wide and locally. The annual output or supply of trained graduates (and qualified early leavers) from all training agencies and institutions in the State was a most important input to the process of total unified program planning.

The net result of this process of analyzing supply and demand was to disclose many unmet training needs in the State. In the same way that job opportunities are a key to the successful transition from school to work so are a wide range of physical facilities, equipment, teachers and other resource requirements essential to the occupational education of the people who need it and can profit from it.

FINANCE AND REPORTING

Many reporting difficulties were found in the forms and procedures used to report enrollments and finance information. The procedure for making application for and payment of claims was very complex and cumbersome.

The financial aid policies particularly those that are legislated were found to be outmoded and in fact were inadvertently continuing the misdirection of the occupational service programs. The wording of the equalization subsidy formula for aiding all basic education in the State defeats the spirit of equalization by aiding wealthier districts more and poorer districts less.

PROFESSIONAL SERVICES

Pennsylvania expended more than twice the required amount of Federal funds for professional service activities. There is great need for unification of basic professional teacher education courses in the participating higher education institutions of the State. There is also a lack of appropriate non-credit in-service types of teacher training, especially for new teachers recruited out of business and industry. Since this study did not deal with the curriculum and curriculum development activities, there is need for a thorough evaluation of vocational education curricula.

The vocational guidance services throughout the State generally were found to be largely college oriented and as a result many high school graduates and dropouts who do not want to go on to college are not getting adequate occupational information and vocational counseling to assist them in training for,finding and holding jobs. Placement services in vocational education programs were very inadequate.

THE LARGE CITIES

In general, it was found that the Philadelphia vocational education program did not grow proportionately as well as Pittsburgh since the passage of the Vocational Education Act of 1963. Vocational education administrative difficulties were found in the Philadelphia system which had been offset in Pittsburgh. Obviously, a large portion of the population and the work force of the State are located in the Philadelphia and Pittsburgh metropolitan areas as well as in the second class cities. The program needs of the large cities are great and complex.

SPECIAL SOCIOECONOMIC NEEDS

There are serious socioeconomic problems in Pennsylvania, especially in the Appalachian Counties. In addition, the special needs program was very deficient in terms of money expended and people served.

A SYSTEM OF FOLLOW-UP OF VOCATIONAL EDUCATION GRADUATES AND EARLY LEAVERS

A system for conducting continuous follow-up of vocational education graduates and their early leavers was designed and put into operation during the course of the study. The system will reach 100% of all graduates each year except in the case of business and office occupations where a 10% sampling will be used because of the large number of students involved. The follow-up system will provide valuable information to feed back into the curriculum and thereby make possible continuous improvement of the programs.

EMPLOYER SURVEY

The results of an informal survey of 2,000 employers revealed the great interest that the vast majority of employers have in the vocational education programs of the State. In general, they expressed favorable reaction to the programs and their graduates and indicated their willingness to serve in an advisory capacity or in other helpful ways. The employers also revealed a considerable need for new technicians in the next five years.

LOCAL ADMINISTRATOR SURVEY

Although local vocational education administrators expressed their general satisfaction with the services of and relationship with the State staff, they did emphasize the need for improved continuous communication both ways between State and local levels. Deficiencies in the vocational guidance and counseling services were indicated. Poor administrative working relationships at the local level were described in many cases.

A considerable number and variety of specific conclusions and recommendations are threaded throughout the entire report. They do not always appear at the end of a chapter depending upon the particular organization of the contents. Many other recommendations and suggestions for expansion and improvement of vocational, technical and continuing education programs are implied or can be derived by more extensive examination and analysis of the data and findings contained in each chapter. In fact, the real value of the report exists in its potential as a resource for continuous program review and evaluation. For this reason, the reader should review the whole report thoroughly in order to understand the full import of the study.

RECOMMENDATIONS

A broad overview of the completed report suggested that the many specific conclusions and recommendations could be consolidated into a more limited grouping with real value and purpose for the expansion and improvement of services. They are stated as concisely and briefly as is consistent with clearness:

1. It is recommended that the Pennsylvania State Board of Education, serving as the State Board for Vocational Education, be designated and given authority by the Governor or the legislature as the agency in the Commonwealth responsible for the overall coordination of all occupational and continuing education programs, public and private, secondary and post-secondary, from the standpoint of the supply aspects of the labor market.

2. It is recommended that over the period of the next two years, the present Bureau of Vocational, Technical and Continuing Education should be phased into a major division of occupational and continuing education, headed by a deputy commissioner, to provide for program planning, program evaluation, professional services and supervision of the operating programs and overall coordination of other occupational and continuing education programs in the Commonwealth.

3. It is recommended that five field offices of a new occupational and continuing education agency be established in centrally located cities, in three regions, eastern, central and western, and one each in Philadelphia and Pittsburgh in order to consolidate and unify administrative and professional services to all local school districts, area vocational-technical schools, and other cooperating institutions and agencies. The field offices in the two large cities could cope full-time with the varied and complex problems in those metropolitan areas.

4. It is recommended that the State Board and the Department of Public Instruction should re-examine its allocation of vocational education funds with a view toward increasing financial aid for new services and programs in the two large metropolitan areas of Pittsburgh and Philadelphia and second class school districts where there are concentrations of underprivileged youth and adults in poor environment.

5. It is recommended that the procedures for the systematic unified State-local program planning be adopted as policy by the State Board and the Department of Public Instruction and implemented at State and local levels in phases over the next two years.

6. It is recommended that the Research Coordinating Unit, the occupational and continuing education agency, and other involved Bureaus of the Department of Public Instruction set up ways and means to continue the collection and analysis of data and information on economic developments, manpower supply and demand projections, graduate follow-up information and other inputs required in the systems planning procedure.

7. It is recommended that a thorough in-depth analysis be made of all reporting and accounting procedures in the vocational, technical and continuing education programs of the State with a view toward setting up a standardized, efficient data processing system to be managed by the Comptroller's office.

8. It is recommended that a task force of representatives of the vocational teacher education institutions and other knowledgeable and interested persons be organized to work with the occupational and continuing agency of the Department of Public Instruction to: identify and unify the common elements in professional vocational teacher education programs and courses in all occupational services; assist in the development of teacher education program plans; develop an adequate standardized reporting system; and prepare adequate budgets for involving their respective institutions more in professional service activities (rather than administrative and supervisory aspects) of the program, namely; teacher education curriculum revision, effective teaching methods, technology in education, curriculum and instructional materials development, leadership development, training of supporting personnel and research activities.

9. It is recommended that substantial vocational education funds be budgeted for allocation to local districts to assist them in the employment of qualified vocational guidance counselors and placement officers because there is high correlation between placement services in a vocational-technical school or department and the effectiveness of the program.

10. It is recommended that qualified staff be appointed and assigned full-time and that substantial allocation of funds be made to promote and develop programs to meet the needs of the socioeconomic disadvantaged in rural and urban areas.

11. It is recommended that additional staff should be designated and assigned full-time to promote and develop new and expanded programs of technical and health occupations education programs. These new staff members should function as units apart from but in cooperation with the other occupational services.

12. It is recommended that the State Board of Education take a more positive, active role in the development of policies designed to expand many different kinds of adult education programs and services.

13. It is recommended that additional staff be employed in the central office and in the field to concentrate on the promotion and development of adult vocational education programs to take advantage of the many modern area vocational-technical school facilities and other resources.

14. It is recommended that the computerized system for follow-up of secondary vocational education graduates and early leavers should be continued in operation, perhaps most efficiently and economically under contract with an outside service agency. With certain adaptations of the system, all other training agencies should be invited to participate in the follow-up of their graduates and early leavers.

15. It is recommended that a State-local program manual or guide, a regular periodical bulletin, appropriate conferences and workshops, and other ways and means be established and carried on by the occupational and continuing education agency of the Department of Public Instruction to improve communication between the State office and the local administration of vocational and technical education. Other interested public should be served in a similar way.

16. It is recommended that additional staff be employed, qualified to work full-time on the promotion and development of all types of cooperative education, work study and work experience programs, including off-farm agriculture occupations, in order to take advantage of funds earmarked for that purpose in Part G of P.L. 90-576.

17. It is recommended that study and consideration be given to the earliest possible use of the various State-owned and State-related trade and technical schools such as the Thaddeus Stevens Trade School as residential centers for disadvantaged youth in order to take advantage of the provisions and funding authorizations for this purpose in Part E of P.L. 90-576.

18. It is recommended that greater consideration be given by the occupational and continuing education agency to the possible use of private business, trade and technical schools, under contract, especially to provide certain training services not available in public institutions, as provided for under Section 122 (a) (7), P.L. 90-576.

19. It is recommended that the Research Coordinating Unit for Vocational Education be sufficiently staffed with appropriately qualified personnel, and funded to continue to update and analyze the data and information required in the planning system. Continued periodic consultative service should be utilized as necessary to refine and revise the planning system.

20. It is recommended that in order to satisfy the unmet trained manpower needs in the State, the projected gross cost estimates described below be given consideration by the State Board for Vocational Education and the Department of Public Instruction with a view toward seeking the needed funds, wholly or in part, from Federal, State and local sources each year between now and 1975.

    Government involvement in manpower training proceeds from a psychoeconomic base to determination of policy, establishment of procedures, adequate funding and efficient staffing. The following budgetary considerations are therefore a main cornerstone of the objectives of the total study report:

    An initial premise was established that the total 1967-68 expenditures for producing a graduate of that year was a firm base from which all expenditures were relative. The annual expenditure per graduate is therefore used as a basic unit for estimating the need for funds.

    The projected budgetary estimates shown in the schedule below are based on the following projected data, assumptions, and procedure which are essential to an understanding of the estimates:

    A. Table 97, Chapter V, reports an annual manpower demand of 259,100; annual supply of 75,900; and an annual unmet need of 161,400 up to 1975.

    B. The 1968 Pennsylvania vocational education total expenditure of $94,828,113 was made up of: Federal, $14,492,235; State, $31,567,863; Local, $48,768,015, based on the five year history of 20% Federal, 30% State, and 50% local shares.

C. Of 75,942 vocational-technical graduates in 1967 the public schools produced 49,344; the private schools, 15,299, and all others, 11,369.

D. The expenditure per graduate was determined by dividing the total expenditure of $94,828,113 by 49,344 graduates arriving at an approximate $2,000 expenditure for each graduate.

E. Budget Synthesis: Assuming that the total annual projected manpower demand of 259,100 trained workers would be provided for by all of the principal training agencies identified in this study, by subsidies from public Federal, State and local funds, the total annual expenditure would be approximately $518,200,000.

F. After the subtraction of an estimated 1968 grand total expenditure of $151,884,000, the new or net additional annual funding needed from all sources, including public funds, private school capital and student tuition, would be approximately $366,316,000.

SCHEDULE OF BREAKDOWN OF ESTIMATED ANNUAL FUNDING* NEEDED TO 1975 BY GROUPS OF ALL INSTITUTIONAL TRAINING AGENCIES AND PROGRAMS IN PENNSYLVANIA

	I Total	II Federal	III State	IV Local
a. Public schools, grades 10-11-12--50% of graduates	$259,100,000	$ 51,820,000	$ 77,730,000	$129,550,000
b. Public schools, grades 13-14--15% of graduates	77,730,000 [1]	12,955,000	12,955,000	25,910,000
c. Public schools program totals by source /Sub-total	$336,830,000	$ 64,775,000	$ 90,685,000	$155,460,000
d. Private schools, [2] ungraded--20% of graduates	103,640,000	NONE	NONE	NONE
e. Other schools and classes--15% of graduates [3]	77,730,000	69,957,000	7,773,000	NONE
f. Annual budgetary extimate of total need	$518,200,000	$134,732,000	$ 98,458,000	$155,460,000
g. 1968 Estimated total for all programs expenditure**	151,884,000	30,376,800	45,565,200	75,942,000
h. Approximate net additional annual funding to 1975**	$366,316,000	$104,355,200	$ 52,892,800	$ 79,518,000

[1] One third of this total expenditure is borne by student tuition and was not included in the breakdown tabulations in Columns II, III, IV. One-third was assigned to local and the other one-third to Federal and State equally, one-sixth each.

[2] Private capital investment--No public funds were available, except under special contract, and therefore, none were included in the breakdown in Columns II, III, and IV.

[3] Other schools and classes include MDTA, State retraining, and two year programs in four year colleges, and other private non-profit institutions. A number of these programs are financed with 90% Federal funds and 10% State funds. Since little or no local funds are involved, there were no local funds assigned to these programs in Column IV.

* Funding includes construction costs and vocational adult education programs.

** It should be noted that the sum of the figures in Columns II, III, IV will not add up to the total figures in Column I because private school capital and postsecondary student tuition amounts were not included in the breakdown as explained in footnotes (1) and (2) above.

The gross estimates in the schedule would be reduced by any increased supply of trained manpower that might be identified from sources not included in this report. The estimate will also vary from year to year, particularly with a change in the figure, $2,000, the annual expenditure per graduate. In turn, the base figure will fluctuate in accordance with variables such as the following:

- Shifts in program enrollments and the percent of utilization of the available training stations.
- Establishment of higher cost programs which will obviously raise the unit cost, and vice versa.
- Year to year changes in the proportionate expenditures for construction.
- Capital outlay as a start-up expenditure for area vocational-technical schools or community colleges will reflect an immediate higher unit cost followed by a lower unit cost as programs begin to produce graduates.
- Other schools and classes will fluctuate in operation and so will the unit cost, as Federal and State emergency legislation and policies dictate.

Separate cost breakouts are not made in this analysis of the two program classifications, day school and adult education. Socioeconomically significant adult education programs are considered as additional benefits resulting from the establishment of day school facilities which are available for adult classes during non-regular school time.

In line with these gross estimates of needed funds, specific local area programs of occupational education would need to be planned under the systematic State-local planning procedure described in Chapter VI. All local area plans would need to be supported by full justification of need for the program and approval of plans and funds would be applied for in the manner prescribed by the Department of Public Instruction. All feasible alternatives for meeting training needs would be considered and the final proposed program plans would be measured in terms of a total balanced program, and the funds needed and available to finance them.

It is not expected that the Commonwealth would wholly fund such sharply increased budgets in so short a time. In fact, it is very unlikely that the Department of Public Instruction or other groups of training agencies could expand their training programs so quickly if the funds were made available at once. The real purpose of this procedure and the resulting estimates is to give the State Board a basis for measuring the estimated total annual funding need, taking into account all agencies, institutions, and programs, and total funding. From this base, the State Board could proceed to legislative considerations, policy and evaluation, shifting of program emphases and long range budgetary planning. The Board and the Department could set interim goals between now and 1975 to strive for in an effort to bring the trained manpower supply more nearly into proximity of the projected demand. In this way, occupational and continuing education could, in fact, become an economic asset to the Commonwealth.

This study was made to assist the State Board for Vocational Education and the Department of Public Instruction in meeting the goals of occupational and continuing education for Pennsylvania. The study data is of necessity voluminous, its conclusions numerous, and its recommendations comprehensive and long range. The State Board's policies and action with emphasis on program changes and improvements to meet justified needs will very likely find ready general acceptance and full cooperation at all levels of government.

APPENDICES

APPENDIX A

Commonwealth of Pennsylvania
DEPARTMENT OF PUBLIC INSTRUCTION
Harrisburg

AN OUTLINE PROPOSAL OF A STUDY OF VOCATIONAL AND TECHNICAL EDUCATION IN PENNSYLVANIA

I. The Problem

Matching people with jobs along with the need for civic and social competence is one of the most serious and difficult problems in the nation today. Persistent unemployment and underemployment, especially among youth, and at the same time continued demand (in many sectors of the economy) for skilled workers of all kinds points up the problem.

There is much evidence that an extensive system of public and private vocational and technical education would contribute greatly to the solution of the problem. Everywhere in the nation, States and communities are addressing themselves to in-depth analyses of their present manpower situation with a view toward the design and establishment of an effective system of education and training of the non-professional work force. Pennsylvania as one of the largest and most important States in the whole economy has no less a problem than any of the other States.

In order to establish and conduct an effective program of education and training throughout the State, it is imperative that Pennsylvania study all of the elements of its present situation. Then by coordinating and analyzing the results of a number of vital studies, there should be produced as the major outcomes a series of recommendations that would lead to the implementation of a good program. Many valuable by-products of the study would be attained as well.

The coordination and analyses of the various studies should meld into a single unified report which would lead to a State-wide program design or plan. All of the sub-studies should be carried out on a planned, phased time sequence as shown on the attached planning chart, in such a manner that each could be reported on and used with value independently. Recommendations based on thorough analyses of a number of sub-studies should include the need for additional facilities, costs and time estimates to attain the goals set forth by the State Board of Education.

The following sections of this outline detail to some degree the philosophy and goals of the Pennsylvania program. In addition, the necessary sub-studies in a sequential order are identified. This is not intended as an outline of a final report. As a later supplement to this outline, each sub-study will be developed in considerable detail and used in making the necessary arrangements to finance and conduct the studies. All results of the studies will be used as source data to produce a final report.

It is estimated that the entire study will take approximately two to two and one-half years and range in total cost from $200,000 to $250,000 over this period of time. Every effort will be made to speed the completion of the entire study at a minimum total cost.

II. The Philosophy and Rationale of the Pennsylvania Program

(a) The Goals

The goals for vocational and technical education as adopted by the State Board of Education on March 10, 1966 point the way to an overall philosophy of an effective program. A universally accepted general concept of an ideal goal presently is to make appropriate vocational and technical education opportunities of high quality readily accessible to persons of all ages in all communities of the State. In more detail, the State should maintain, extend and improve existing programs (of vocational education), and develop new programs of vocational and technical education so that persons of all ages in all communities of the State - those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market but need to upgrade their skills or learn new ones, those who are unemployed and underemployed, and those with special educational handicaps - will have ready access to vocational and technical education and training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests and ability to benefit from such training.

Such programs do not take the place of general academic education but rather supplement and enhance it for students who want and need training for a chosen occupation. Vocational education is an important part of a well-balanced program of studies - not a single subject - which is aimed at developing competent workers and recognizes that the American worker should also be competent economically, socially, emotionally, physically, intellectually, and in a civic sense. Effective vocational education is more inclusive than simply training for job skills. It also develops abilities, understandings, attitudes, work habits, and appreciations which contribute to a satisfying and productive life.

Vocational education for adults plays an essential role in maintaining America's efficiency in production, distribution and consumption, and, as a consequence, its high standard of living. Adult workers in any field, through training in skills and knowledge related to their occupations, can adapt themselves to technological advances and other developments in their occupation, become more productive, prepare themselves for advancement, and increase their earning capacity.

As a result of the implementation of such a philosophy and rationale, vocational and technical education should in fact become an economic asset to Pennsylvania.

(b) A Total Balanced Program

To accomplish the ideal goal, Pennsylvania would need a total balanced program, - an all-age, all-person program. A total-balanced program is one that is tailored to the requirements of communities and defined areas, yet does not lose sight of the patterns emerging in the State and national labor market. Such a program not only must make room for all the persons it expects to serve; it must reflect the arrival and departure of businesses and industries and the flow of workers to and from the State or area labor market.

(c) Basic or Fundamental Factors of a Total Balanced Program

Such a program would need to be developed on the basis of four fundamental factors:

(1) All programs would be geared to labor market needs, immediate and long time; and on local, area, State, regional and national needs.

(2) Training programs would be considered for all occupations (other than professional) from low and semi-skilled jobs to highly skilled technician and specialist jobs.

(3) Persons of all levels of ability would be considered for training, from those of least ability to those of highest ability on the assumption that all persons have the ability to perform on a job appropriate to his aptitude and interests; that each person should have the opportunity to attain the maximum of his potential ability.

(4) All types of institutions would be considered for conducting bona fide vocational and technical education programs (with due concern to existing and developing institutions) e.g.

(a) Departments of comprehensive high schools

(b) Vocational-technical high schools
(self contained as in large cities)

(c) Area vocational-technical schools
(secondary and/or postsecondary)

(d) Junior or community colleges

(e) Technical institutes

(f) Colleges and universities

(g) Private schools (by contract)

A State program based on these fundamental factors would need to be subjected to continuous research and evaluation so that innovations, changes, revisions, expansion and improvement are possible at all times. Experimentation and demonstration programs should be designed and conducted so as to assure program change and improvement.

III. The Overall Study and Sub-Studies

(a) The Need

All of the preceding sets the stage for a comprehensive in-depth study of training needs in Pennsylvania with a view toward developing recommendations to implement a total balanced program of vocational and technical education. The following are the sub-studies that would be needed to develop a comprehensive report and recommendations:

(1) The Economy of Pennsylvania

A report of such a study should be opened with and based upon an account and analysis of the economy of Pennsylvania. All existing studies and reports on the economy of the State should be utilized as resource material and analyzed from the standpoint of information and trends pertinent to vocational and technical education programs. Economic studies and reports, population data and other necessary information and data are available from sources such as:

Pennsylvania Department of Labor and Industry

Pennsylvania Department of Commerce

U.S. Department of Labor

Census Bureau, U.S. Department of Commerce

The Pennsylvania State University, University of Pittsburgh, Temple University, and University of Pennsylvania

(2) Occupational Training Needs

The most important and immediate study should be undertaken of the labor market needs of Pennsylvania. This study should be carried out in cooperation with the Pennsylvania Employment Service and with other knowledgeable persons and agencies. Some of the costs of this study may need to be defrayed by the State Board of Education. The study should take into account all existing employers and jobs in the State as well as prospective new employers. It should also take into account immediate job openings, new and emerging occupations, and projections of demands in two years and five years. In addition to local, area, and State needs, it should give careful consideration of regional and national demands, especially those in national clearance.

This study should be divided into various sub-studies of important employment and occupational segments of the Pennsylvania labor force, e.g. agriculture (production and services); health; trade and industrial occupations in manufacturing and construction; distribution; office; hotel and restaurant; social welfare (aides and specialists); public service (fire, police and municipal); home economics; and technician occupations that cut across all of these.

This study should lead to the development of a system which would continuously update the labor market information in the State and be made available to those concerned with program planning and evaluation.

(3) Status and Appraisal of Present Programs

The next most important sub-study should be undertaken of the present programs of vocational and technical education, public and private, in the State and any aspects of a planned State-wide system now under development such as the area vocational-technical schools. An appraisal should be made of the general effectiveness of the programs and of their relationship to each other in the light of the State's labor market situation and needs. This would include an examination of the growing community college occupational training programs, The Pennsylvania State University, Commonwealth technical education programs, and the private non-profit and proprietary schools and programs in the State. Careful examination should be given to the programs operating or planned in the large cities, the second and third class cities, counties, areas, and rural situations. Much of this information should be available in the State office but local leaders should be involved extensively in this study.

Apprentice training in Pennsylvania should be studied, including the activities of the Pennsylvania Council on Apprenticeships. Accomplishments and trends of the Pennsylvania Apprentice Programs and their relationship to the vocational education programs should also be studied.

(4) Follow-up of Graduates and Dropouts

A follow-up study of recent and also older vocational school graduates and dropouts should be conducted. Some special attention should be given to a study of these older graduates who completed vocational education programs and have reached the height of their working careers in the occupation for which they were trained. The study should be so designed as to provide feed-back to the program for the revision of the curriculum or the removal of any deficiencies that might be revealed. This study should result in the development of a continuous follow-up system of vocational schools graduates and dropouts.

(5) The Large Cities

The unique educational and training of problems of Philadelphia and Pittsburgh should be examined and reported with a view toward improving the relationships between the State Department of Public Instruction and the city's school systems. Other large community problems should also be studied.

(6) Special Needs

A comprehensive study of special needs should be undertaken with emphasis on program services needed by disadvantaged or socio-economic handicapped persons and minority groups.

(a) Slow or reluctant learners

(b) Disadvantaged youth from poor home environment and residential schools

(c) Functionally illiterate adults

(d) Aging workers

(e) Minority groups suffering educational or other handicaps

(7) Guidance, Counseling and Placement Services

A special study should be conducted of the guidance and counseling services for all students with special emphasis on the vocational aspects of this program. Included in this study should be an examination of cumulative student record systems, occupational information services, exploration and try-out programs, including work experience programs and placement service for vocational and other non-college bound students.

(8) Vocational Teacher Education and Certification

All vocational teacher education pre-service and in-service programs should be studied with a view toward determining the adequacy and the quality of the Pennsylvania program. Leadership development programs should also be considered and recommended in order to expand and improve the administration and supervision services at all levels. Special problems in vocational teacher certification, especially in trade and industrial education should also be studied.

(9) State and Local Administration

A study should be conducted of the State and local administration of vocational education programs. A clear picture should be obtained of the organization and administration relationships at all levels. Communication, up and down, should be studied with a view toward developing an effective system of exchanging important information currently and continuously.

(10) Finance and Reporting

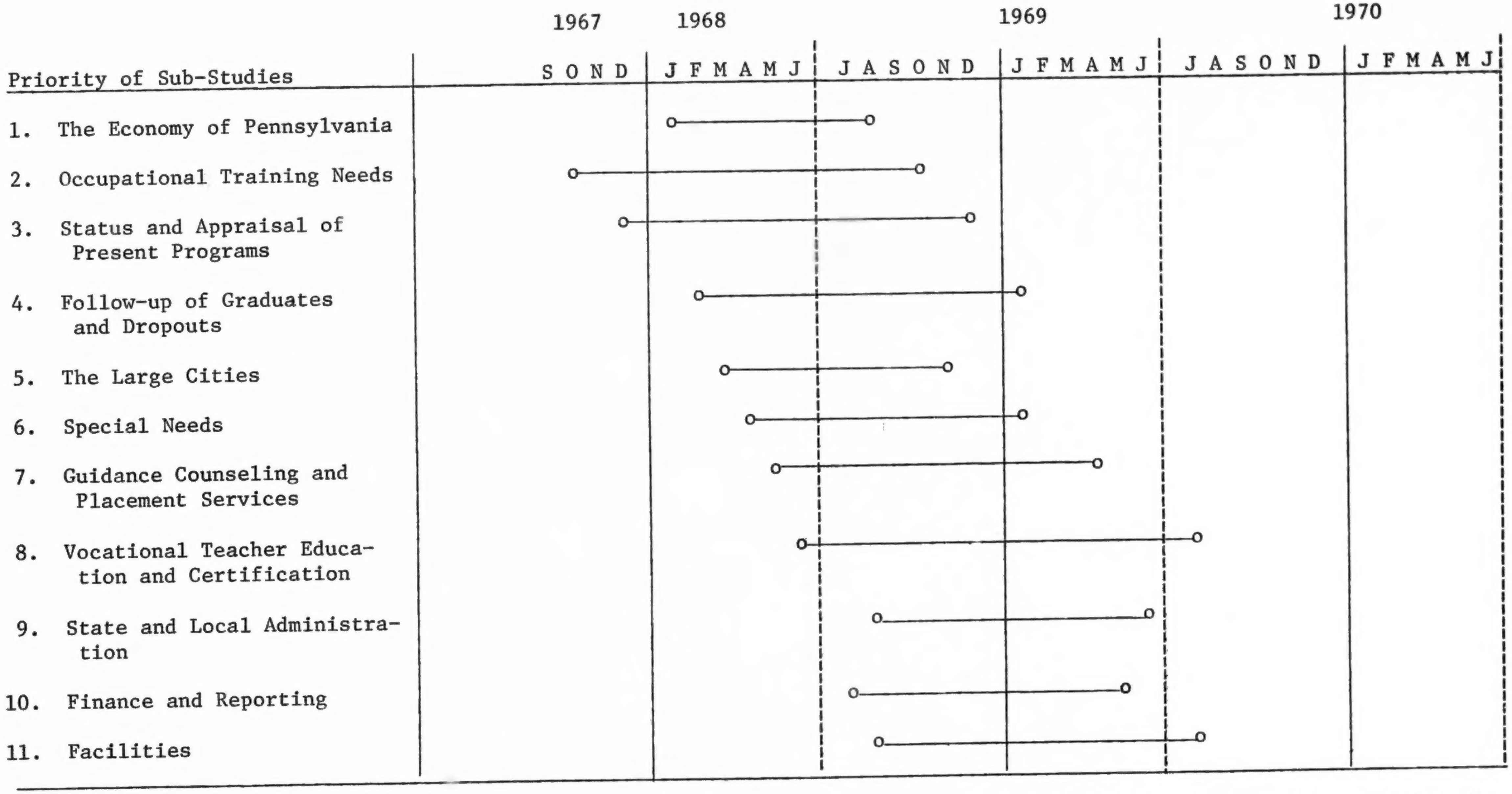
A special sub-study should be conducted on the financing, budgeting, accounting and reporting system and procedures in vocational education in the State. This study should include examination of the Federal requirements in each of these administrative phases. It should look into the systems of educational data processing, State and national, with a view toward adapting the Pennsylvania system to a national system.

(12) Facilities

Obviously any extensive State-wide system of vocational and technical education will require considerable expansion of physical facilities to house the necessary variety of programs. This study would examine extent and adequacy of the present facilities and those now in various planning stages. Out of this and in light of the additional needs that are uncovered, there would be developed a series of recommendations for expansion including the number and strategic locations of new plants, instructional equipment, program offerings, costs, time schedules and other pertinent information. A study of the provision for area school facilities in the Appalachian Region program should also be included in this study especially with regard to the relationship of this program to those in the rest of the State.

A STUDY OF VOCATIONAL AND TECHNICAL EDUCATION IN PENNSYLVANIA
(Estimated Time and Priority Schedule for Sub-Studies)

(Years - Months)



o Begin negotiation for study
Estimated length of study
o Final report of each sub-study

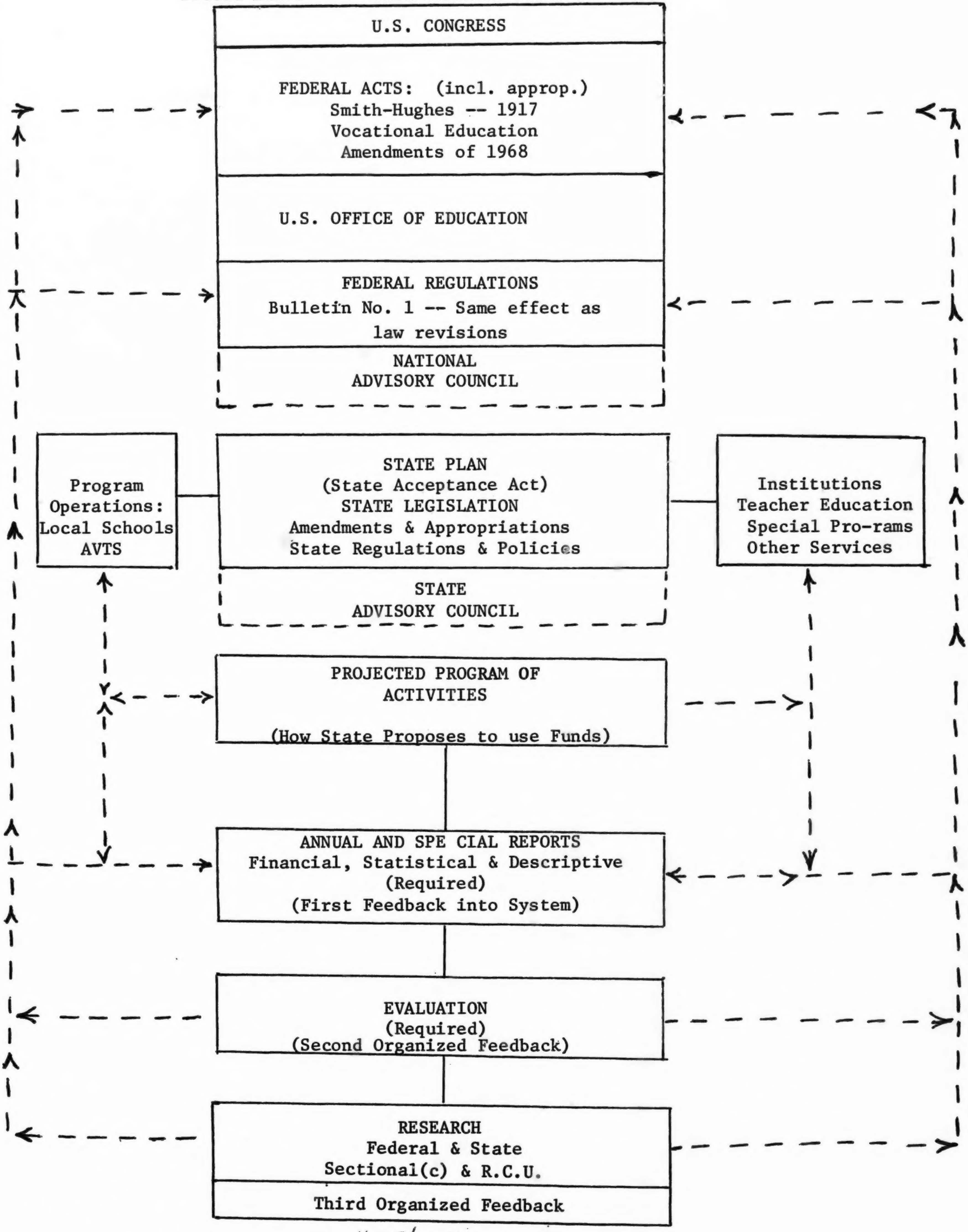
* Intermediate Reports made periodically

September 12, 1967

APPENDIX B

THE FEDERAL-STATE-LOCAL SYSTEM OF VOCATIONAL EDUCATION

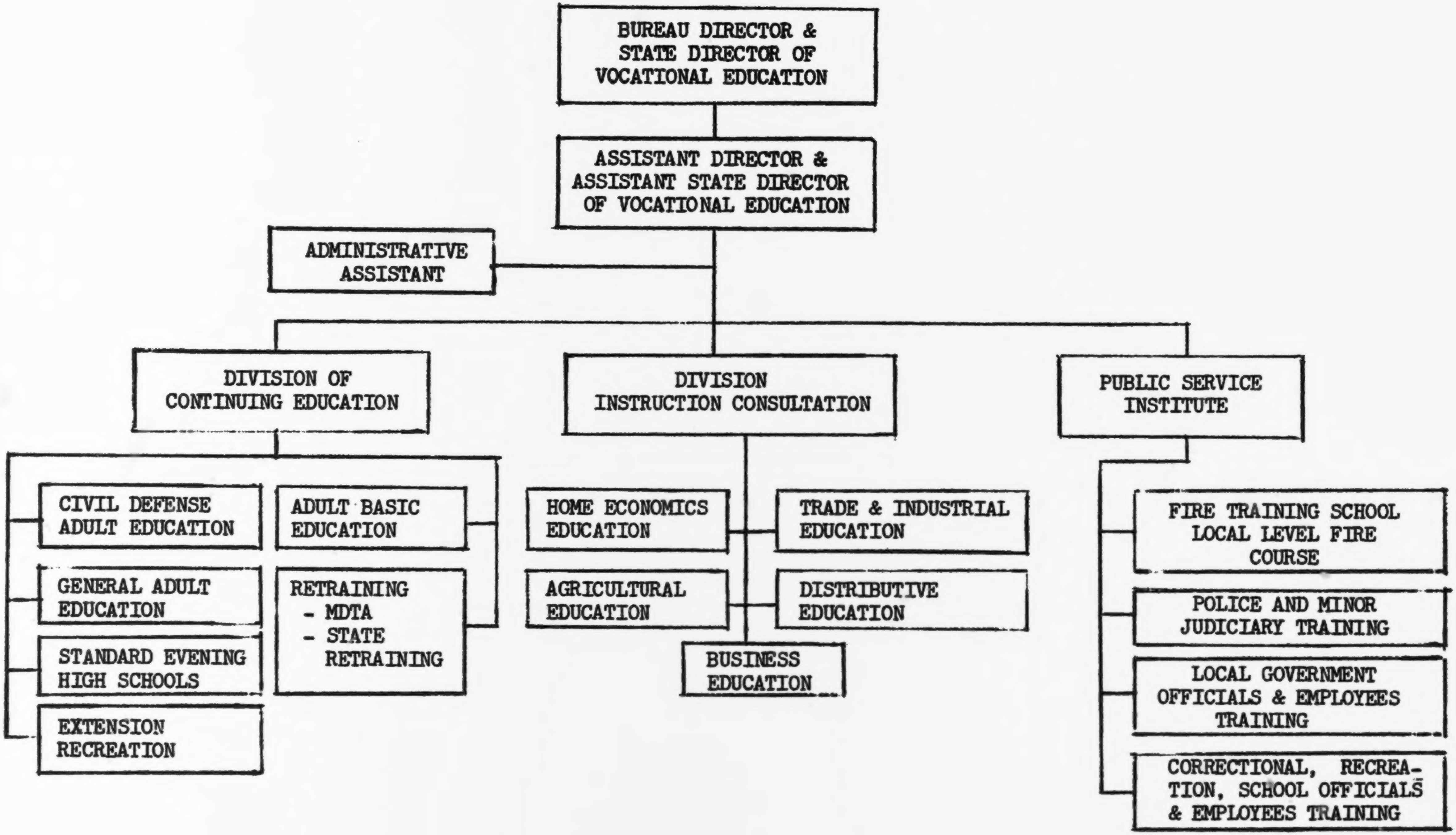
Solid Lines Administrative Flow
Dotted Lines ---- Communication-Feedback Lines


U.S. CONGRESS
FEDERAL ACTS: (incl. approp.)
Smith-Hughes -- 1917
Vocational Education
Amendments of 1968
U.S. OFFICE OF EDUCATION
FEDERAL REGULATIONS
Bulletin No. 1 -- Same effect as
law revisions
NATIONAL
ADVISORY COUNCIL
Program
Operations:
Local Schools
AVTS
STATE PLAN
(State Acceptance Act)
STATE LEGISLATION
Amendments & Appropriations
State Regulations & Policies
Institutions
Teacher Education
Special Pro-rams
Other Services
STATE
ADVISORY COUNCIL
PROJECTED PROGRAM OF
ACTIVITIES
(How State Proposes to use Funds)
ANNUAL AND SPE CIAL REPORTS
Financial, Statistical & Descriptive
(Required)
(First Feedback into System)
EVALUATION
(Required)
(Second Organized Feedback)
RESEARCH
Federal & State
Sectional(c) & R.C.U.
Third Organized Feedback

APPENDIX C
BUREAU OF VOCATIONAL, TECHNICAL, AND CONTINUING EDUCATION
STAFFING PATTERN (OCTOBER 10, 1968)

		Instructional Consultation Division							Continuing Education Division						Public Service Institutes						
	Bureau Office	Agriculture Ed	Business Education	Distributive Education	Home Economics	Trade & Industrial Ed.	Division Office	Division Totals	C.D.A.E.	Recreation	Adult Basic Ed.	M.D.T.A.	Division Office	Division Totals	Fire	Police	Local Government	Correctional Recreation	Division Office	Division Totals	Grand Totals
Professional Totals	4	22	16	10	30	22	1	101	6	1	5	11	1	24	5	1	2	2	3	13	142
Supervisors	1	2	1	1	1	1	1	7	1	1	1	1	1	5	1	1	1	1	1	5	18
Hbg. Staff Professional	3	1	3	2	1	7		14	5		4	1		10	4		1	1		6	33
Hbg. Staff Vacancies				1	2	3		6				3		3					2	2	11
Field Staff Professionals		19			23			42				6		6							48
Field Staff Vacancies					3			3													3
Univ. Based Professional			10	6		11		27													27
Univ. Based Prof. Vacancies			2					2													2
Clerical Totals	8	3	6	4	4	10	2	29	5	1	3	6	1	16	4				5	9	62
Hbg. Clerical	8	2	2	2	3	6	1	16	5		3	6	1	15	4				4	8	47
Hbg. Clerical Vacancies		1			1			2		1				1					1	1	4
Grand Totals	12	25	22	14	34	32	3	130	11	2	8	17	2	40	9	1	2	2	8	22	204

BUREAU OF VOCATIONAL, TECHNICAL, & CONTINUING EDUCATION


BUREAU DIRECTOR & STATE DIRECTOR OF VOCATIONAL EDUCATION
ASSISTANT DIRECTOR & ASSISTANT STATE DIRECTOR OF VOCATIONAL EDUCATION
ADMINISTRATIVE ASSISTANT
DIVISION OF CONTINUING EDUCATION
DIVISION INSTRUCTION CONSULTATION
PUBLIC SERVICE INSTITUTE
CIVIL DEFENSE ADULT EDUCATION
GENERAL ADULT EDUCATION
STANDARD EVENING HIGH SCHOOLS
EXTENSION RECREATION
ADULT BASIC EDUCATION
RETRAINING
- MDTA
- STATE RETRAINING
HOME ECONOMICS EDUCATION
TRADE & INDUSTRIAL EDUCATION
AGRICULTURAL EDUCATION
DISTRIBUTIVE EDUCATION
BUSINESS EDUCATION
FIRE TRAINING SCHOOL LOCAL LEVEL FIRE COURSE
POLICE AND MINOR JUDICIARY TRAINING
LOCAL GOVERNMENT OFFICIALS & EMPLOYEES TRAINING
CORRECTIONAL, RECREATION, SCHOOL OFFICIALS & EMPLOYEES TRAINING

APPENDIX D

OCCUPATIONAL EDUCATION
DIRECTORY DATA FORM

INSTRUCTIONS

- Completed data forms must be returned to the School District Superintendent no later than the date indicated above.
- Insert completed data forms into the enclosed official return envelope so that your school address is exposed in the envelope window. DO NOT MAIL THE FORMS TO THE SCHOOL DISTRICT SUPERINTENDENT IN THE ENCLOSED RETURN ENVELOPE. Instead, either send by messenger or mail the official return envelope in a second envelope provided by you.
- Read six-step instructions below carefully before attempting to complete data form. Refer to example data form as you read the instructions. Open booklet so Page 1 and 4 are up.
- An occupational curriculum code list is shown on Page 2. Step 1 should be applied to the curriculum list as per instructions before attempting to complete the data form.

1 IDENTIFY SCHOOL COURSE OFFERINGS. A list of occupational course offerings is shown on the reverse side. Starting at the top of the list, circle the code number of each course now offered in your school. If a course offering is not shown on the list, write the title in the space provided at the bottom of the course list. When all course offerings have been identified, number the courses consecutively in sequence No. column. Record total number in box at upper right.

2 DESCRIBE COURSE OFFERINGS IN SEQUENCE. Enclosed are three(3) Pennsylvania Occupational Education Data Forms. Each form describes up to 10 course offerings. If your school offers more than 30 occupational courses, obtain more forms from your school district head.

- Start with side 1 of the form to which your school address label is attached. Describe course No. 1 in the No. 1 data box, course No. 2 in the No. 2 data box, and so on until all courses have been recorded. Note that the box for course No. 10 requires a bold 1 to be recorded to indicate 10. Similarly, a course No. 11 would be recorded on a second form in box No. 1 renumbered to read box No. 11. Course No. 12 would go in box 2, renumbered to read box 12. Thus, by adding a bold number in front of a printed bold number, you can indicate the course sequence number for all course offerings.
- Provide the following data for each occupational course offering.

Col. 1. Curriculum code No. Record the code No. listed on the curriculum code list for the course being described by (1st) writing the number in the boxes provided and (2nd) transferring the recorded code number for machine reading into the number columns below by marking out the correct numbered spaces. (See example data form.)

If the curriculum for which data is presented does not have a code number, record 00 for machine reading and write the curriculum title in the space provided.

► **Use a No. 2 or softer pencil to record numbers for machine reading.**

Col. 2. Course duration. Indicate whether the course is a 4, 3, 2, or 1 year course by, as before, writing in the number and then transferring the number for machine reading.

Col. 3. Maximum work stations. Indicate either the (1) maximum number of work stations or (2) the maximum number of students that can be accommodated without jeopardizing effective instructions, whichever concept is most appropriate for indicating the recommended maximum No. of students for a **single class session.**

CAUTION: Do not automatically give the number of students in the largest class as the **recommended** maximum. Try to ascertain a true recommended maximum by consultation with the course instructors.

Col. 4. Enrollment all grades. Record the total number of students enrolled in all grades or all years of the course as of October 15. Record with written number and also for machine reading as per prior instructions.

Col. 5. Enrollment in 12th grade. Record the total number of students enrolled in the 12th grade of the course or the total number of students in the last year of the course where course is upgraded. Record as per prior instructions.

Col. 6. First-time offering. Indicate whether the course was offered for the first time in the present school year by marking out the yes or no answer space.

REPEAT THE ABOVE IN THE CORRECT BOLD NUMBER BOX FOR EACH OF THE SCHOOL'S OCCUPATIONAL COURSE OFFERINGS.

3 RECORD TOTAL NO. OF COURSE OFFERINGS. Record for machine reading the total No. of occupational curriculums offered by the school in the space directly beneath the address label on side 1 of the first form used.

4 RECORD THE ACTUAL OR ESTIMATED PERCENTAGE OF NON-WHITE ENROLLMENT IN OCCUPATIONAL COURSES. Record for machine reading the calculated (preferred) or estimated percentage of non-white students enrolled in occupational courses **based upon total enrollment in such courses.**

5 RECORD SCHOOL IDENTIFICATION NUMBER. Your school identification number is located at the lower right of the school address label which is on one of the three enclosed data forms. Record that number for machine reading in the school I.D. number space **on both sides of each data form used.**

► To the right of each school I.D. number space, record the page number as follows:

	Page
1st Data Form: Side 1:	1
1st Data Form: Side 2:	2
2nd Data Form: Side 1:	3
2nd Data Form: Side 2:	4
3rd Data Form: Side 1:	5
3rd Data Form: Side 2:	6

and so on for as many data forms as needed to provide data on all occupational courses offered.

6 CHECK COMPLETED FORMS FOR:

- Correct I.D. number on front and back of all forms?
- Correct page numbering on all forms?
- Non-white enrollment indicated? (Side 1)
- Total curriculum offerings indicated? (Side 1)
- All course offerings described?
- Use of No. 2 or softer pencil?

THANK YOU

CURRICULUM CODE LIST

TOTAL OCCUPATIONAL COURSES OFFERED ☐

SEQUENCE NUMBER	COURSE CODE	COURSE TITLE
		TRADE & INDUSTRIAL OCCUPATIONS
	01	Air Conditioning/Heating
	02	Aircraft Mechanics
	03	Appliance Repair
	04	Auto Body Repair
	05	Auto Mechanics
	06	Building Maintenance
	07	Carpentry
	08	Commercial Art
	09	Cosmetology
	10	Diesel Mechanics
	11	Drafting
	12	Dressmaking
	13	Electric Motor Repair
	14	Electrical Trades
	15	Food Trades
	16	Foundry
	17	Laundry-Presser
	18	Machine Shop
	19	Masonry
	20	Metal Trades
	21	Mill/Cabinetry
	22	Mine Maintenance
	23	Musical Instrument Repair
	24	Painting/Decorating
	25	Pattern Making
	26	Plumbing
	27	Power Sewing
	28	Printing (Graphic Arts)
	29	Radio/Television
	30	Scientific Helper
	31	Sheet Metal
	32	Shoe Repair
	33	Small Engine Repair
	34	Tailoring
	35	Textile Products
	36	Upholstery
	37	Welding
	38	Woodworking
	39	Occupational Orientation
	40	General Industrial
	41	Heavy Equipment Operator
		DISTRIBUTIVE OCCUPATIONS
	49	Distributive Education

SEQUENCE NUMBER	COURSE CODE	COURSE TITLE
		TECHNICAL OCCUPATIONS
	50	Architectural Design Technology
	51	Architectural Technology
	52	Chemical Technology
	53	Civil Technology
	54	Electrical Technology
	55	Electronics Communication
	56	Electronics Technology
	57	Engineering/Related Technology
	58	Instrumentation
	59	Mechanical Drafting and Design
	60	Metallurgical Technology
	61	Scientific Data Processing
	62	Tool and Die Technology
		HEALTH OCCUPATIONS
	70	Dental Assistant
	71	Health Assistant
	72	Medical Assistant
	73	Nursery School Assistant
	74	Nurses Aide
	75	Optician
	76	Practical Nursing
		AGRICULTURE OCCUPATIONS
	80	Agricultural Mechanics
	81	Agricultural Production
	82	Agricultural Products
	83	Agricultural Resources
	84	Agricultural Supplies
	85	Forestry
	86	Ornamental Horticulture
	87	Other Agricultural Specialties & Services
		OFFICE OCCUPATIONS
	90	Accounting/Computing
	91	Business Data Processing
	92	General Clerical
	93	Stenographic/Secretarial
		HOME ECONOMICS OCCUPATIONS
	95	Care & Guidance of Children
	96	Clothing & Textiles Service
	97	Food Services
	98	Home Furnishing
	99	Institutional & Home Health Aides

WRITE IN UNCODED COURSE OFFERINGS BELOW

SEQUENCE NUMBER	COURSE CODE	COURSE TITLE	SEQUENCE NUMBER	COURSE CODE	COURSE TITLE
	00			00	
	00			00	
	00			00	
	00			00	
	00			00	

PENNSYLVANIA OCCUPATIONAL EDUCATION DIRECTORY FORM

2

INSTRUCTIONS ➤ READ GENERAL INSTRUCTIONS BEFORE COMPLETING THIS FORM • COMPLETE ONE CURRICULUM BOX FOR EACH OCCUPATIONAL CURRICULUM OFFERED • BE SURE TO TRANSFER YOUR SCHOOL ID NUMBER ONTO THE FRONT AND BACK OF ALL FORMS IF MORE THAN ONE FORM IS USED TO DESCRIBE YOUR CURRICULA

6	1		2	3			4			5			6
	CURRICULUM CODE NO.		DUR (YRS)	MAXIMUM WORK STATIONS			ENROLLMENT ALL GRADES			ENROLLMENT 12TH GRADE			IS THIS A FIRST-TIME OFFERING?
RECORD ANSWERS ➤	9	1	1	0	5	5	0	5	1	0	4	2	
➤	0	0		●	0	0	●	0	0	●	0	0	
TRANSFER RECORDED ANSWERS TO THE MACHINE READING FORM IN SPACES AT THE RIGHT	1	●	●	1	1	1	1	1	●	1	1	1	
	2	2	2	2	2	2	2	2	2	2	2	●	
	3	3	3	3	3	3	3	3	3	3	3	3	
	4	4	4	4	4	4	4	4	4	4	●	4	
	5	5		5	●	●	5	●	5	5	5	5	
	6	6		6	6	6	6	6	6	6	6	6	YES
	7	7		7	7	7	7	7	7	7	7	7	☒
	8	8		8	8	8	8	8	8	8	8	8	NO
➤	●	9		9	9	9	9	9	9	9	9	9	☐

IF CURRICULUM IS NOT CODED, RECORD TITLE AT THE RIGHT ➤

7	1		2	3			4			5			6
	CURRICULUM CODE NO.		DUR (YRS)	MAXIMUM WORK STATIONS			ENROLLMENT ALL GRADES			ENROLLMENT 12TH GRADE			IS THIS A FIRST-TIME OFFERING?
RECORD ANSWERS ➤	9	3	2	1	0	0	0	7	3	0	4	1	
➤	0	0		0	●	●	●	0	0	●	0	0	
TRANSFER RECORDED ANSWERS TO THE MACHINE READING FORM IN SPACES AT THE RIGHT	1	1	1	●	1	1	1	1	1	1	1	●	
	2	2	●	2	2	2	2	2	2	2	2	2	
	3	●	3	3	3	3	3	3	●	3	3	3	
	4	4	4	4	4	4	4	4	4	4	●	4	
	5	5		5	5	5	5	5	5	5	5	5	
	6	6		6	6	6	6	6	6	6	6	6	YES
	7	7		7	7	7	7	●	7	7	7	7	☐
	8	8		8	8	8	8	8	8	8	8	8	NO
➤	●	9		9	9	9	9	9	9	9	9	9	☒

IF CURRICULUM IS NOT CODED, RECORD TITLE AT THE RIGHT ➤

8·	1		2	3			4			5			6
	CURRICULUM CODE NO.		DUR (YRS)	MAXIMUM WORK STATIONS			ENROLLMENT ALL GRADES			ENROLLMENT 12TH GRADE			IS THIS A FIRST-TIME OFFERING?
RECORD ANSWERS ➤	9	5	1	0	3	7	0	3	1	0	2	7	
➤	0	0		●	0	0	●	0	0	●	0	0	
TRANSFER RECORDED ANSWERS TO THE MACHINE READING FORM IN SPACES AT THE RIGHT	1	1	●	1	1	1	1	1	●	1	1	1	
	2	2	2	2	2	2	2	2	2	2	●	2	
	3	3	3	3	●	3	3	●	3	3	3	3	
	4	4	4	4	4	4	4	4	4	4	4	4	
	5	●		5	5	5	5	5	5	5	5	5	
	6	6		6	6	6	6	6	6	6	6	6	YES
	7	7		7	7	●	7	7	7	7	7	●	☐
	8	8		8	8	8	8	8	8	8	8	8	NO
➤	●	9		9	9	9	9	9	9	9	9	9	☒

IF CURRICULUM IS NOT CODED, RECORD TITLE AT THE RIGHT ➤

9	1		2	3			4			5			6
	CURRICULUM CODE NO.		DUR (YRS)	MAXIMUM WORK STATIONS			ENROLLMENT ALL GRADES			ENROLLMENT 12TH GRADE			IS THIS A FIRST-TIME OFFERING?
RECORD ANSWERS ➤	9	6	2	0	5	5	0	3	2	0	1	4	
➤	0	0		●	0	0	●	0	0	●	0	0	
TRANSFER RECORDED ANSWERS TO THE MACHINE READING FORM IN SPACES AT THE RIGHT	1	1	1	1	1	1	1	1	1	1	●	1	
	2	2	●	2	2	2	2	2	●	2	2	2	
	3	3	3	3	3	3	3	●	3	3	3	3	
	4	4	4	4	4	4	4	4	4	4	4	●	
	5	5		5	●	●	5	5	5	5	5	5	
	6	●		6	6	6	6	6	6	6	6	6	YES
	7	7		7	7	7	7	7	7	7	7	7	☐
	8	8		8	8	8	8	8	8	8	8	8	NO
➤	●	9		9	9	9	9	9	9	9	9	9	☒

IF CURRICULUM IS NOT CODED, RECORD TITLE AT THE RIGHT ➤

0	1		2	3			4			5			6
	CURRICULUM CODE NO.		DUR (YRS)	MAXIMUM WORK STATIONS			ENROLLMENT ALL GRADES			ENROLLMENT 12TH GRADE			IS THIS A FIRST-TIME OFFERING?
RECORD ANSWERS ➤													
➤	0	0		0	0	0	0	0	0	0	0	0	
TRANSFER RECORDED ANSWERS TO THE MACHINE READING FORM IN SPACES AT THE RIGHT	1	1	1	1	1	1	1	1	1	1	1	1	
	2	2	2	2	2	2	2	2	2	2	2	2	
	3	3	3	3	3	3	3	3	3	3	3	3	
	4	4	4	4	4	4	4	4	4	4	4	4	
	5	5		5	5	5	5	5	5	5	5	5	
	6	6		6	6	6	6	6	6	6	6	6	YES
	7	7		7	7	7	7	7	7	7	7	7	☐
	8	8		8	8	8	8	8	8	8	8	8	NO
➤	9	9		9	9	9	9	9	9	9	9	9	☐

IF CURRICULUM IS NOT CODED, RECORD TITLE AT THE RIGHT ➤

ATTENTION

SCHOOL ID NUMBER AT THE RIGHT ➤ MUST MATCH THE NUMBER ON SIDE ONE. FORMS CANNOT BE PROCESSED WITHOUT ID NUMBERS.

USE ADDITIONAL FORM IF SCHOOL OFFERS MORE THAN TEN (10) OCCUPATIONAL COURSES

TRANSFER SCHOOL ID NO. BELOW			PAGE NUMBER
●	0	0	
1	●	1	
2	2	2	●
3	3	3	
4	4	4	4
5	5	5	
6	6	6	6
7	7	●	
8	8	8	8
9	9	9	

PENNSYLVANIA OCCUPATIONAL EDUCATION DIRECTORY FORM

1

INSTRUCTIONS ➤ READ GENERAL INSTRUCTIONS BEFORE COMPLETING THIS FORM • COMPLETE ONE CURRICULUM BOX FOR EACH OCCUPATIONAL CURRICULUM OFFERED • BE SURE TO TRANSFER YOUR SCHOOL ID NUMBER ONTO THE FRONT AND BACK OF ALL FORMS IF MORE THAN ONE FORM IS USED TO DESCRIBE YOUR CURRICULA

1

	1	2	3	4	5	6
	CURRICULUM CODE NO.	DUR (YRS)	MAXIMUM WORK STATIONS	ENROLLMENT ALL GRADES	ENROLLMENT 12TH GRADE	IS THIS A FIRST-TIME OFFERING?
RECORD ANSWERS ➤	0 7	1	0 3 0	0 1 2	0 0 7	YES ☐ NO ■

TRANSFER RECORDED ANSWERS TO THE MACHINE READING FORM IN SPACES AT THE RIGHT

IF CURRICULUM IS NOT CODED, RECORD TITLE AT THE RIGHT ➤

2

	1	2	3	4	5	6
	CURRICULUM CODE NO.	DUR (YRS)	MAXIMUM WORK STATIONS	ENROLLMENT ALL GRADES	ENROLLMENT 12TH GRADE	IS THIS A FIRST-TIME OFFERING?
RECORD ANSWERS ➤	3 7	2	0 2 5	0 2 3	0 2 0	YES ☐ NO ■

TRANSFER RECORDED ANSWERS TO THE MACHINE READING FORM IN SPACES AT THE RIGHT

IF CURRICULUM IS NOT CODED, RECORD TITLE AT THE RIGHT ➤

3

	1	2	3	4	5	6
	CURRICULUM CODE NO.	DUR (YRS)	MAXIMUM WORK STATIONS	ENROLLMENT ALL GRADES	ENROLLMENT 12TH GRADE	IS THIS A FIRST-TIME OFFERING?
RECORD ANSWERS ➤	4 9	3	0 7 0	0 5 4	0 2 1	YES ☐ NO ■

TRANSFER RECORDED ANSWERS TO THE MACHINE READING FORM IN SPACES AT THE RIGHT

IF CURRICULUM IS NOT CODED RECORD TITLE AT THE RIGHT ➤

4

	1	2	3	4	5	6
	CURRICULUM CODE NO.	DUR (YRS)	MAXIMUM WORK STATIONS	ENROLLMENT ALL GRADES	ENROLLMENT 12TH GRADE	IS THIS A FIRST-TIME OFFERING?
RECORD ANSWERS ➤	8 6	1	0 1 5	0 1 1	0 1 1	YES ■ NO ☐

TRANSFER RECORDED ANSWERS TO THE MACHINE READING FORM IN SPACES AT THE RIGHT

IF CURRICULUM IS NOT CODED, RECORD TITLE AT THE RIGHT ➤

5

	1	2	3	4	5	6
	CURRICULUM CODE NO.	DUR (YRS)	MAXIMUM WORK STATIONS	ENROLLMENT ALL GRADES	ENROLLMENT 12TH GRADE	IS THIS A FIRST-TIME OFFERING?
RECORD ANSWERS ➤	9 0	2	1 1 0	0 7 6	0 3 4	YES ☐ NO ■

TRANSFER RECORDED ANSWERS TO THE MACHINE READING FORM IN SPACES AT THE RIGHT

IF CURRICULUM IS NOT CODED, RECORD TITLE AT THE RIGHT ➤

FREEDOM SHS
3149 CHESTER AVENUE
BETHLEHEM PA 18017
013 017

TRANSFER SCHOOL ID NO. BELOW: 0 1 7

PAGE NUMBER: 1

RECORD NUMBER OF CURRICULUM OFFERINGS IN ALL PROGRAMS: 0 9

RECORD AN ACTUAL OR ESTIMATED PERCENTAGE NON-WHITE ENROLLMENT:

- ☐ 0-9%
- ☐ 10-19%
- ■ 20-29%
- ☐ 30-39%
- ☐ 40-49%
- ☐ 50-59%
- ☐ 60-69%
- ☐ 70-79%
- ☐ 80-89%
- ☐ 90-100%

APPENDIX E

OCCUPATIONAL STUDENT
INFORMATION DATA FORM

INSTRUCTIONS

MAY 23 1969

► Return completed forms to school head in school-provided envelope no later than May 23. Thank you.

► Read carefully the 7-step instructions below before attempting to complete the data forms. Refer to example data form as you read the instructions. Open booklet so pages 1 and 4 are face up.

► An occupational curriculum (course) code list is shown on the next page. Use this list to identify your curriculum (course) code in step 4 below.

► Your school code number is ______. Use this number to complete step 4 below.

---

1 DISTRIBUTE FORMS TO STUDENTS. Give one form to each 12th grader in your occupational course for as many sections of that course as you teach. If needed, ask the school head for additional forms.

ATTENTION: Be certain to have **all** seniors, including absentees, fill out forms by the designated due date.

•**EXCEPTIONS:** If you teach an accounting/computing, general clerical, or stenographic and secretarial course, distribute forms **only to every tenth senior on your alphabetical class roster,** i.e. to the 1st, 11th, 21st and so on down your class roster. If you teach more than one section of any of these courses, follow this procedure in each such section.

If you teach a business data processing course, distribute forms **only to every other senior on your alphabetical class roster,** i.e. to the 1st, 3rd, 5th and so on down your class roster.

2 INSTRUCT STUDENTS TO RECORD THEIR NAMES AND ADDRESSES. Explain each of the following steps separately. After each, have the students complete that step **only.** You may wish to guide your instructions with a chalk board illustration. (Study example data form).

CAUTION YOUR STUDENTS TO

- Use a No. 2 or No. 1 soft pencil only. The form cannot be machine read when the harder pencils are used.
- Proceed only as per your instructions. If they get ahead of you, they are likely to make errors.
- Ask questions when in doubt about any part of the form completion.

Step 1. Student name. Turn your forms to side one. Record the first letter of your **first** name in box No. 1. Record the first letter of your **last** name in box No. 2, and the remaining letters in boxes 3-14, putting one letter in each box only. If your name is longer than 14 letters, record the first 14 letters only.

Next, transfer your name for machine reading by marking out the letter in each column which corresponds to the letter you recorded in the box at the top of the column. (Show them how.) Proceed with step 1.

Step 2. Street, box, or rural route number. Starting with box No. 15, record your street, box, or rural route number. As before, transfer the number for machine reading by marking out the appropriate numbers in the columns below. If you have no street, box, or R.D. number, leave blank. Proceed with step 2.

Step 3. Street name or "box" or "rd". Starting with box No. 20, record your street name or, if box, record "box", or if rural delivery, record "RD". Transfer the letters for machine reading. Proceed with step 3.

►**Have students turn forms over to side two and continue as follows:**

Step 4. "St", "rd", "ave", "blvd", or blank. Starting with box No. 1, record whichever abbreviation is appropriate. If this step does not apply, leave blank. Transfer for machine reading. Proceed with step 4.

Step 5. City in which you reside. Starting with box No. 5 record name of your residence city. If city name is longer than 20 letters, record the first twenty letters only. Transfer for machine reading. Proceed with step 5.

Step 6. State. Transfer the letters "PA" in boxes 25 and 26 for machine reading. Proceed with step 6.

Step 7. Zip code. Starting with box 27 record your five-digit zip code. If you do not know your zip code, leave blank. Transfer the numbers for machine reading. Proceed with step 7.

3 INSTRUCT STUDENTS TO RECORD THEIR AFTER-GRADUATION PLANS. (Have your students turn to bold-numbered block 2 on side 1 and read the instructions printed there. Instruct them as follows:) Complete questions 1 through 6 in that order, following instructions on the form. Indicate your answers by marking out the answer space which corresponds with your answer to each question.

4 INSTRUCT STUDENTS TO RECORD SCHOOL AND COURSE ID NUMBERS. Read the instructions in bold-numbered block 3 carefully. Your 3-digit school number is recorded at the top of this instruction sheet. To find your 2-digit course number consult the curriculum code list on page 2 of this instruction booklet. Write both numbers on the black board. Then you may instruct your students as follows:

Turn to side 1, bold-numbered block 3 on the form, and record your school number in boxes 1-3. (Give school number.) In boxes 4 and 5 record your course number. (Give course number). Transfer your answers for machine reading. Turn to side 2, bold-numbered block 5 and record and transfer **exactly the same school and course numbers** in boxes 1-3 and 4-5.

► **COLLECT FORMS FROM STUDENTS AND PROCEED:**

5 RECORD ASSESSMENTS OF STUDENTS. Stack collected forms. After reading the recorded name of each student, turn his form over to side 2, bold-numbered answer block 4. Complete questions 1 through 6. All your answers are strictly confidential.

These assessments must be frank and honest if they are to be at all helpful in predicting students' vocational successes after graduation. It may be that individualized instructor ratings rather than test scores or grades, are the most accurate predictors of post-graduation success.

6 ENTER STUDENT NUMBERS. Read the instructions in bold-numbered block 3 on the form carefully. Assign each student a consecutive number, beginning with 001. Record such numbers in boxes 6-7-8 in the student I.D. number block on both sides of the form. Transfer each such number for machine reading. While doing so, check the correctness of the **school** and **course** number portions of the I.D. number entered by your students.

EXCEPTIONS: If you teach two or more sections of the same course gather together forms from all sections and assign consecutive student numbers as above. If two or more instructors teach sections of the same course, the senior instructor should collect all forms and assign consecutive student numbers as above.

7 CHECK COMPLETED FORMS FOR:

- Use of No. 2 or softer pencil?
- A form filled in for each senior?
- Correct student I.D. numbers on both sides of forms?
- All answers transferred for machine reading?

COURSE CODE	COURSE TITLE
	TRADE & INDUSTRIAL OCCUPATIONS
01	Air Conditioning/Heating
02	Aircraft Mechanics
03	Appliance Repair
04	Auto Body Repair
05	Auto Mechanics
06	Building Maintenance
07	Carpentry
08	Commercial Art
09	Cosmetology
10	Diesel Mechanics
11	Drafting
12	Dressmaking
13	Electric Motor Repair
14	Electrical Trades
15	Food Trades
16	Foundry
17	Laundry-Presser
18	Machine Shop
19	Masonry
20	Metal Trades
21	Mill/Cabinetry
22	Mine Maintenance
23	Musical Instrument Repair
24	Painting/Decorating
25	Pattern Making
26	Plumbing
27	Power Sewing
28	Printing (Graphic Arts)
29	Radio/Television
30	Scientific Helper
31	Sheet Metal
32	Shoe Repair
33	Small Engine Repair
34	Tailoring
35	Textile Products
36	Upholstery
37	Welding
38	Woodworking
41	Heavy Equipment Operator
48	**Other Than Above***
	DISTRIBUTIVE OCCUPATIONS
49	Distributive Education

COURSE CODE	COURSE TITLE
	TECHNICAL OCCUPATIONS
51	Architectural Technology/Architecture Design
52	Chemical Technology
53	Civil Technology
54	Electrical Technology
55	Electronics Communication
56	Electronics Technology
57	Engineering/Related Technology
58	Instrumentation
59	Mechanical Drafting and Design
60	Metallurgical Technology
61	Scientific Data Processing
62	Tool and Die Technology
69	**Other Than Above***
	HEALTH OCCUPATIONS
70	Dental Assistant/Dental Technician
71	Health Assistant/Hospital Assistant
72	Medical Assistant/Doctors Assistant
73	Nursery School Assistant/Practical Nursing
74	Nurses Aide
75	Optician
79	**Other Than Above***
	AGRICULTURE OCCUPATIONS
80	Agricultural Mechanics
81	Agricultural Production
82	Agricultural Products/Supplies
83	Agricultural Resources
85	Forestry
86	Ornamental Horticulture
89	**Other Than Above***
	OFFICE OCCUPATIONS
90	Accounting/Bookkeeping
91	Business Data Processing/Computer Technology
92	General Clerical/Clerk Typist
93	Stenographic/Secretarial
94	**Other Than Above***
	HOME ECONOMICS OCCUPATIONS
96	Clothing & Textiles Service
97	Food Services/Restaurant Services
98	Home Furnishing/Interior Decorating
99	**Other Than Above***

***Write Course Title Above Block 3 on Student Information Data Form.**

PENNSYLVANIA OCCUPATIONAL STUDENT INFORMATION FORM 2

INSTRUCTIONS ➤ • READ GENERAL INSTRUCTIONS BEFORE HAVING THE 12TH GRADERS COMPLETE THEIR PORTIONS OF THE DATA FORM • DIRECT COMPLETION OF THE FORM ONE ITEM AT A TIME • COMPLETE SECTION 4 ONLY AFTER STUDENTS HAVE RETURNED COMPLETED FORMS • CHECK CORRECTNESS OF ID NUMBER ON EACH SIDE

1 CONT'D

4 ST, RD, AVE, BLVD OR BLANK

1	2	3	4
S	T		

5 RECORD NAME OF CITY IN WHICH YOU RESIDE BEGINNING IN BOX NO. 5

5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
P	I	T	T	S	B	U	R	G	H										

6 STATE

25	26
P	A

7 ZIP CODE

27	28	29	30	31
1	5	2	1	3

PLEASE CHECK
YOUR WORK
TO MAKE SURE
YOUR ADDRESS
IS CORRECT
FOR
MACHINE READING

THANK YOU

4 INSTRUCTOR: Please give your frank assessment of the student by answering Questions 1 thru 6 • All answers are confidential

1 WHAT WILL BE STUDENT'S FINAL COURSE GRADE? (TENTATIVE)
- ☐ A – EXCELLENT
- ☒ B – SUPERIOR
- ☐ C – AVERAGE
- ☐ D – BELOW AVERAGE
- ☐ F – FAILING

2 HOW WOULD YOU RATE STUDENT ON OCCUPATIONAL SKILLS?
- ☐ EXCELLENT
- ☒ ABOVE AVERAGE
- ☐ AVERAGE
- ☐ BELOW AVERAGE
- ☐ POOR

3 WOULD YOU RECOMMEND STUDENT TO EMPLOYER FOR OCCUPATION STUDIED?
- ☒ YES, WITH ENTHUSIASM
- ☐ YES, WOULD RECOMMEND
- ☐ YES, WITH RESERVATIONS
- ☐ NO, COULD NOT RECOMMEND

4 HOW DOES STUDENT RATE IN COURSE KNOWLEDGE AND SKILL?
- ☐ EXCELLENT
- ☐ ABOVE AVERAGE
- ☒ AVERAGE
- ☐ BELOW AVERAGE
- ☐ POOR

5 HOW DOES STUDENT RATE IN ATTITUDE TOWARD WORK?
- ☒ EXCELLENT
- ☐ ABOVE AVERAGE
- ☐ AVERAGE
- ☐ BELOW AVERAGE
- ☐ POOR

6 IF STUDENT HAS A JOB LINED UP FOR AFTER HIGH SCHOOL, DID YOU HELP PLACE STUDENT?
- ☒ DOES NOT HAVE JOB AS YET
- ☐ YES, I HELPED PLACE HIM
- ☐ NO, I DIDN'T HELP PLACE
- ☐ STUDENT'S PLANS EXCLUDE EMPLOYMENT IMMEDIATELY AFTER HIGH SCHOOL

5 INSTRUCTOR: PLEASE READ ▼

1. The 3 digit school number is on your instruction sheet. Record in boxes 1–3. Then, record it for machine reading in columns below.
2. The 2 digit course number is on your instruction sheet. Record in boxes 4–5. Again record it for machine reading below.
3. When all data forms have been returned to you, assign each a consecutive student number in boxes 6–8, starting with 001 and going on to 002, 003, 004, 005, etc., for as many forms as you have. Record for machine reading.
4. You may wish to have your students do parts 1 & 2 under your step-by-step instruction.

➤ DATA FORM CAN NOT BE PROCESSED WITHOUT CORRECT STUDENT ID NUMBER ON BOTH FRONT AND BACK OF FORM

◀— STUDENT ID NUMBER —▶

SCHOOL NUMBER			COURSE NUMBER		STUDENT NUMBER		
1	2	3	4	5	6	7	8
0	0	4	0	4	0	0	3

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PENNSYLVANIA OCCUPATIONAL STUDENT INFORMATION FORM

1

INSTRUCTIONS ➤ • READ GENERAL INSTRUCTIONS FIRST • HAVE STUDENTS COMPLETE SECTIONS 1, 2, 3, AND 5 UNDER YOUR DIRECTION • COMPLETE SECTION 4 LAST

1

1 FIRST LETTER OF FIRST NAME IN BOX NO. 1. BEGIN FIRST LETTER OF LAST NAME IN BOX NO. 2. COMPLETE NAME IN BOX 3 TO BOX 14.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
J	D	O	E										

2 STREET, BOX, OR RURAL ROUTE NUMBER

15	16	17	18	19
4	5	2	7	

3 RECORD STREET NAME. OR, IF BOX, RECORD "BOX". OR, IF RURAL DELIVERY, RECORD "RD".

20	21	22	23	24	25	26	27	28	29	30	31
W	I	N	T	H	R	O	P				

ATTENTION

1. Complete your home address on the reverse side of this form.
2. Check your work after completion to make certain your name and address have been correctly recorded for machine reading.

2

STUDENT: Please answer Questions 1 thru 6 in numerical order unless your answer calls for you to skip to a later question. Use a soft lead pencil to make your mark.

1 WHAT DO YOU PLAN TO DO FIRST AFTER HIGH SCHOOL?

- ☒ FULL-TIME JOB →
- ☐ MILITARY SERVICE
- ☐ FULL-TIME COLLEGE
- ☐ FULL-TIME SCHOOL
- ☐ PART-TIME JOB/SCHOOL
- ☐ OTHER THAN ABOVE

SKIP TO Q. 4

2 DO YOU ALREADY HAVE A JOB?

- ☐ YES →
- ☒ NO

SKIP TO Q. 4

3 HOW RELATED IS THE JOB TO YOUR HIGH SCHOOL COURSE OF STUDY?

- ☐ SAME OCCUPATION
- ☐ HIGHLY RELATED OCCUP.
- ☐ SLIGHTLY RELATED OCCUP.
- ☐ COMPLETELY UNRELATED OCCUPATION

SKIP TO Q. 5

4 WILL YOUR FUTURE WORK BE RELATED TO YOUR HIGH SCHOOL COURSE?

- ☐ DON'T KNOW
- ☒ YES, SAME FIELD
- ☐ YES, RELATED FIELD
- ☐ NO, COMPLETELY UNRELATED

5 WHAT IS YOUR SEX AND RACE?

- ☐ MALE / WHITE
- ☒ MALE / BLACK
- ☐ MALE / OTHER
- ☐ FEMALE / WHITE
- ☐ FEMALE / BLACK
- ☐ FEMALE / OTHER

6 HOW QUALIFIED DO YOU FEEL TO ENTER THE OCCUPATION STUDIED IN HIGH SCHOOL?

- ☐ DON'T KNOW
- ☐ VERY WELL QUALIFIED
- ☒ QUALIFIED
- ☐ POORLY QUALIFIED

3

INSTRUCTOR: PLEASE READ

1. The 3 digit school number is on your instruction sheet. Record in boxes 1–3. Then, record it for machine reading in columns below.
2. The 2 digit course number is on your instruction sheet. Record in boxes 4–5. Again record it for machine reading below.
3. When all data forms have been returned to you, assign each a consecutive student number in boxes 6–8, starting with 001 and going on to 002, 003, 004, 005, etc., for as many forms as you have. Record for machine reading.
4. You may wish to have your students do parts 1 & 2 under your step-by-step instruction.

➤ DATA FORM CAN NOT BE PROCESSED WITHOUT CORRECT STUDENT ID NUMBER ON BOTH FRONT AND BACK OF FORM

← STUDENT ID NUMBER →

SCHOOL NUMBER			COURSE NUMBER		STUDENT NUMBER		
1	2	3	4	5	6	7	8
0	0	4	0	4	0	0	3

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APPENDIX F

Side 1

ANNUAL SURVEY OF PENNSYLVANIA FORMER STUDENTS

Dear Former Student:

All Pennsylvania schools are cooperating in the annual survey of former students. The purpose is to learn how Pennsylvania students have fared in the world of work and/or continuing education during the first year after high school. Such information will help to improve the quality of secondary school education in our state. It will also tell us whether more must be done to help former students find better jobs or to improve their opportunity for higher education.

Please complete this questionnaire. Then, return it in the postage-paid envelope that came with the questionnaire.

All information is strictly confidential. All questionnaires are destroyed once your answers have been added to those of other Pennsylvania students.

Please read the inside instructions carefully before trying to answer the questions. Thank you.

Sincerely yours,

J. W. Struck

State Director of Vocation Education

If the label address is incorrect, please give correct address below.

Street__________

City__________

State__________

ATTENTION PARENTS: If your son or daughter is in military service, please check the box below, and return blank questionnaire in the enclosed envelope.

☐ Military Service (address above)

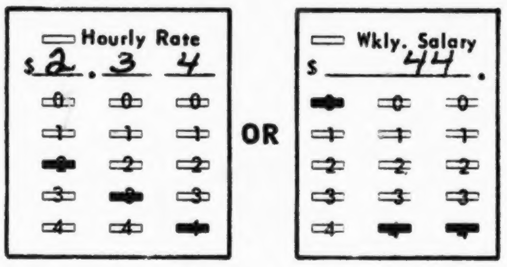
Side 2

GENERAL INSTRUCTIONS

The questionnaire contains questions about your job and education experiences since high school. Please answer all questions that apply to you. Use a SOFT LEAD PENCIL to mark your answers. Do not use a ball pen. The questionnaire-reading machine reads only soft lead pencil marks.

SPECIAL INSTRUCTIONS

1. Answer each question as follows:
   - Read the question completely and carefully.
   - Read all answer alternatives.
   - Decide which answer fits you best.
   - Make a heavy pencil mark in the box at the left of the answer selected by you.
2. Mark only ONE answer for each question, unless the question says you may mark more than one.
3. Several questions require a number answer. For example, your present job hourly rate OR weekly salary is requested. Suppose you had an hourly rate of $2.34. You would first write your hourly rate and then record it for machine reading by marking the correct numbered boxes. (See left example below.)



   OR, if you are on salary, first write your weekly salary (dollars only) and then mark the correct numbered boxes. See the above example at the right. It shows how a wkly. salary of $44 is recorded. ALWAYS MARK THE FIRST COLUMN-0-BOX IF YOUR SALARY IS LESS THAN $100. See example.
4. Some answers call for SKIPPING questions. Where that is the case, be sure to SKIP to the correct next question.
5. Be sure to record your Student I.D. Number on both sides of the questionnaire. See reverse side for instructions on how to do this.
6. USE SOFT LEAD PENCIL ONLY.

THANK YOU

ABOUT AFTER HIGH SCHOOL

1. WHICH CAME FIRST AFTER H.S.? (EXCLUDE TEMPORARY SUMMER JOB)
- ☐ Employed full-time } Skip to **Q. 3**
- ☐ Self-employed }
- ☐ Full-time college
- ☐ Full-time school (not college)
- ☐ Military service
- ☐ Marriage and home career
- ☐ None of above applies

2. HAVE YOU EVER HELD A FULL-TIME CIVILIAN JOB SINCE HIGH SCHOOL? (EXCLUDE TEMPORARY SUMMER JOB)
- ☐ Yes
- ☐ No ——▶ Skip to **Q. 23**

YOUR FIRST FULL-TIME JOB

3. HOW SOON AFTER HIGH SCHOOL DID YOU BEGIN YOUR FIRST F-T JOB?

☐ Immediately	☐ About 2 mos.
☐ About 1 wk.	☐ About 3 mos.
☐ About 2 wks.	☐ About 4 mos.
☐ About 3 wks.	☐ About 5 mos.
☐ About 4 wks.	☐ More than 5 mos.

4. HOW DID YOU GET YOUR FIRST FULL-TIME JOB AFTER HIGH SCHOOL?
- ☐ On my own, without anyone's help
- ☐ Private employment agency
- ☐ State employment agency
- ☐ Thru parents or relative
- ☐ Thru personal friend
- ☐ Already had job with employer
- ☐ Thru vocational teacher
- ☐ Thru school counselor
- ☐ Thru school placement service
- ☐ Other than above

5. UPON LEAVING HIGH SCHOOL, DID YOU WANT WORK IN THE OCCUPATION STUDIED THERE?
- ☐ Yes ——▶ Skip to **Q. 8**
- ☐ No ——▶ Go to **Q. 6**

6. IF NOT, WHAT WAS THE MAIN REASON FOR NOT WANTING A JOB IN THAT FIELD?
- ☐ Didn't think I learned enough
- ☐ Instructor advised against it
- ☐ Decided I didn't like the work
- ☐ Found out the pay was too low
- ☐ Had a job offer in another field
- ☐ Developed new work interests
- ☐ Other reasons

7. WHEN DID YOU FIRST DECIDE THAT YOU DID NOT WANT TO FOLLOW THAT FIELD?
- ☐ Shortly before leaving high school
- ☐ About six months before
- ☐ About one year before
- ☐ About two years before
- ☐ Never really planned to do so

8. WHAT TYPE OF WORK DID YOU DO ON YOUR FIRST FULL-TIME JOB AFTER HIGH SCHOOL? GIVE THE TITLE SUCH AS:

Auto mechanic, Secretary, Farmer, etc.

↘ ______________________________

9. HOW RELATED WAS YOUR FIRST JOB TO YOUR H.S. OCCUPATIONAL COURSE?
- ☐ Same as that studied } Go to **Q. 10**
- ☐ Highly related }
- ☐ Slightly related } Skip to **Q. 11**
- ☐ Completely unrelated }

10. HOW WELL DID YOUR H.S. COURSE PREPARE YOU FOR YOUR FIRST F-T* JOB?

* FULL-TIME
- ☐ Excellent preparation }
- ☐ Well prepared } Skip to **Q. 12**
- ☐ Not well prepared }
- ☐ Poorly prepared }

11. WHY DIDN'T YOU GET YOUR FIRST JOB IN THE OCCUPATION STUDIED IN H.S.?
- ☐ Tried, but could not get job
- ☐ Not accepted into apprentice program
- ☐ Better type job came along first
- ☐ Earnings too low in that occupation
- ☐ Didn't like that type of work
- ☐ Instructor advised against it
- ☐ Not sufficiently qualified
- ☐ Didn't know how to get job
- ☐ Reason other than above

12. DID YOUR FIRST JOB REQUIRE A RESIDENCE CHANGE TO ANOTHER CITY?
- ☐ No ——▶ Skip to **Q. 14**
- ☐ Yes, to city in state } Go to **Q. 13**
- ☐ Yes, to city out of state }

13. HOW MANY MILES DID YOU MOVE?

☐ Less than 50	☐ Between 301-400
☐ Between 51-100	☐ Between 401-500
☐ Between 101-200	☐ Between 501-600
☐ Between 201-300	☐ Over 600 miles

14. HOW SATISFIED WERE YOU WITH YOUR FIRST FULL-TIME JOB?

☐ Highly satisfied	☐ Dissatisfied
☐ Fairly satisfied	☐ Very dissatisfied

15. WHAT WERE YOUR STARTING GROSS EARNINGS (BEFORE DEDUCTIONS) ON YOUR FIRST FULL-TIME JOB?

☐ HOURLY RATE $___.___ ___ OR ☐ WKLY. SALARY $______.

TRANSFER FOR MACHINE READING

0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

16. ARE YOU STILL WITH YOUR FIRST FULL-TIME JOB EMPLOYER?
- ☐ Yes ——▶ Skip to **Q. 18**
- ☐ No ——————▶

Mark total number of months with first employer at right.

(Go to **Q. 17**)

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

17. WHY DID YOU LEAVE YOUR FIRST FULL-TIME JOB EMPLOYER?
- ☐ Laid off, lack of work
- ☐ Laid off, other reason
- ☐ To enter military service
- ☐ To attend school full-time
- ☐ For better paying job
- ☐ For better type work
- ☐ For better working conditions
- ☐ To get married
- ☐ Other than above

18. MARK YOUR PRESENT STATUS BELOW.
- ☐ Employed full-time } Go to **Q. 19**
- ☐ Self-employed full-time }
- ☐ Full-time college }
- ☐ Full-time school (not college) }
- ☐ Military service } Skip to **Q. 22**
- ☐ Unemployed, looking for work }
- ☐ Unemployed, not looking for work }

YOUR PRESENT FULL-TIME JOB

19. HOW SATISFIED ARE YOU WITH YOUR PRESENT JOB?

☐ Highly satisfied	☐ Dissatisfied
☐ Fairly satisfied	☐ Very dissatisfied

20. WHAT ARE YOUR PRESENT GROSS EARNINGS (BEFORE DEDUCTIONS)?

☐ HOURLY RATE $___.___ ___ OR ☐ WKLY. SALARY $______.

TRANSFER FOR MACHINE READING •

0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

21. HOW RELATED IS YOUR PRESENT JOB TO YOUR H.S. OCCUPATIONAL COURSE?
- ☐ Same as that studied
- ☐ Highly related
- ☐ Slightly related
- ☐ Completely unrelated

22. SINCE YOUR FIRST JOB, HOW MANY WEEKS WERE YOU WITHOUT A FULL-TIME JOB WHILE AVAILABLE AND LOOKING FOR WORK?

•About ___ ___ weeks

THEN TRANSFER FOR MACHINE READING.
(Record none as 00)

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

ABOUT YOU AS A PERSON

23. I AM:	24. I AM:	25. I AM:
☐ Male	☐ Single	☐ Black
☐ Female	☐ Married	☐ White
		☐ Other

STUDENT I.D. NUMBER

0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

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EDUCATION AFTER HIGH SCHOOL

26. PLEASE INDICATE WHAT ADDITIONAL EDUCATION OR TRAINING YOU HAVE HAD SINCE H.S. MARK YOUR ANSWER FOR EACH OF THE KINDS OF EDUCATION OR TRAINING LISTED BELOW.

	Yes, dropped out	Yes, completed	Yes, now attending	No, never attended
2-year college	☐	☐	☐	☐
4-year college	☐	☐	☐	☐
Private trade school	☐	☐	☐	☐
Public trade school	☐	☐	☐	☐
Business school	☐	☐	☐	☐
Military service school	☐	☐	☐	☐
Company school	☐	☐	☐	☐
Correspondence school	☐	☐	☐	☐
Apprentice program	☐	☐	☐	☐
On-the-job training	☐	☐	☐	☐

27. HOW RELATED WAS (IS) YOUR POST-H.S. EDUCATION TO YOUR H.S. OCCUPATIONAL COURSE?

☐ No post-high school education → Skip to Q. 29
☐ Same occupation
☐ Highly related occupation
☐ Slightly related occupation
☐ Completely different occupation

28. WHAT WAS (IS) THE MAIN PURPOSE OF YOUR POST-HIGH SCHOOL EDUCATION?

☐ Complete a college education
☐ Advancement in present field of work
☐ Preparation for new field of work
☐ General self-development

29. WHAT WERE SOME REASONS THAT YOU DID NOT GO TO COLLEGE? MARK ALL THAT APPLY.

☐ Not applicable, attended college
☐ Not interested in college education
☐ Preferred to get a job
☐ Grades were not high enough
☐ Not accepted in college of choice
☐ Lacked money to go to college
☐ Decided to get married
☐ Entered military service

30. MARK EDUCATION SOURCE WHICH YOU DEFINITELY PLAN TO ATTEND WITHIN THE NEXT YEAR.

☐ No such plans
☐ 2-yr. college
☐ 4-yr. college
☐ Business school
☐ Company school
☐ Private trade school
☐ Public trade school
☐ Correspondence school
☐ Apprentice program
☐ Other than above

31. ARE YOU FAMILIAR WITH SCHOLARSHIP & LOAN OPPORTUNITIES OFFERED BY STATE OF PA.?

☐ Yes
☐ No

PRESENT TRAINING NEEDS

32. HOW WOULD YOU RATE YOURSELF ON EACH OF THE BASIC SKILLS OR KNOWLEDGE BELOW?

	Excellent	Good	Inadequate	Poor
Manual job skills	☐	☐	☐	☐
Practical job knowledge	☐	☐	☐	☐
Theoretical job knowledge	☐	☐	☐	☐
Mathematical skills	☐	☐	☐	☐
Writing skills	☐	☐	☐	☐
Speaking skills	☐	☐	☐	☐
Reading skills	☐	☐	☐	☐
Clerical skills	☐	☐	☐	☐
Personal relations skills	☐	☐	☐	☐
Supervisory skills	☐	☐	☐	☐

33. HOW ESSENTIAL IS EACH BASIC SKILL OR KNOWLEDGE LISTED BELOW FOR YOUR PRESENT JOB? (SKIP TO Q. 34 IF NOT NOW EMPLOYED)

	Almost daily essential	Frequently essential	Sometimes essential	Not essential
Manual job skills	☐	☐	☐	☐
Practical job knowledge	☐	☐	☐	☐
Theoretical job knowledge	☐	☐	☐	☐
Mathematical skills	☐	☐	☐	☐
Writing skills	☐	☐	☐	☐
Speaking skills	☐	☐	☐	☐
Reading skills	☐	☐	☐	☐
Clerical skills	☐	☐	☐	☐
Personal relations skills	☐	☐	☐	☐
Supervisory skills	☐	☐	☐	☐

34. INDICATE WHETHER YOU NEED ADDITIONAL TRAINING IN EACH BASIC SKILL BELOW. MARK BOX AT FAR RIGHT IF YOU WOULD TAKE SUCH TRAINING, GIVEN OPPORTUNITY IN YOUR AREA.

	Yes	No	Would Take
Manual job skills	☐	☐	☐
Practical job knowledge	☐	☐	☐
Theoretical job knowledge	☐	☐	☐
Mathematical skills	☐	☐	☐
Writing skills	☐	☐	☐
Speaking skills	☐	☐	☐
Reading skills	☐	☐	☐
Clerical skills	☐	☐	☐
Personal relations skills	☐	☐	☐
Supervisory skills	☐	☐	☐

35. DO YOU KNOW OF ANY TRAINING OPPORTUNITIES IN YOUR AREA THAT WOULD MEET YOUR NEEDS?

☐ Yes
☐ No

THANK YOU

I.D. NUMBER INSTRUCTIONS

Beside your name on the address label is your assigned I.D. number. Record that number in the STUDENT I.D. NUMBER BLOCK AT THE BOTTOM OF THIS COLUMN AND AT THE BOTTOM OF THE LAST COLUMN ON THE REVERSE SIDE, as instructed below.

FIRST: Record the number in the boxes at the top of the I.D. number columns. For example, if your number is 12345678, you would record:

STUDENT I.D. NUMBER							
1	2	3	4	5	6	7	8

SECOND: Record the number for machine reading in the small numbered boxes below by marking out the box that matches the number you put at the top of each column. For example, 12345678 is recorded like this:

1	2	3	4	5	6	7	8	
0	0	0	0	0	0	0	0	NOTE HEAVY MARKS
●	1	1	1	1	1	1	1	
2	●	2	2	2	2	2	2	
3	3	●	3	3	3	3	3	
4	4	4	●	4	4	4	4	
5	5	5	5	●	5	5	5	
6	6	6	6	6	●	6	6	
7	7	7	7	7	7	●	7	
8	8	8	8	8	8	8	●	
9	9	9	9	9	9	9	9	

Record your I.D. number NOW on BOTH sides of the questionnaire as described above.

STUDENT I.D. NUMBER								
0	0	0	0	0	0	0	0	MAKE A HEAVY MARK
1	1	1	1	1	1	1	1	
2	2	2	2	2	2	2	2	
3	3	3	3	3	3	3	3	
4	4	4	4	4	4	4	4	
5	5	5	5	5	5	5	5	
6	6	6	6	6	6	6	6	
7	7	7	7	7	7	7	7	
8	8	8	8	8	8	8	8	
9	9	9	9	9	9	9	9	

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